METHODS
OF
TEACHING HOME SCIENCE

RAJAMMAL P. DEVADAS

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FOREWORD

In a fast changing world education will have to shape itself according to the needs of the society, or else, it will become purposeless and obsolete. Home Science is essentially a course to serve the home, community and the country. In addition, it can inspire people with moral and spiritual values, which constitute the eternal background for all progress.

Home Science has a definite role to play in the present day development of our country. Like other courses, it is necessary that Home Science also should become a job-oriented course so that those who study the course will be eligible to work. There is a variety of employment opportunities open to the Home Science graduates today. In Tamil Nadu alone, 6,000 *Balwadis* (Nursery Schools) are proposed to be opened and Home Science graduates who study child development are eminently suited for this purpose. Dieticians are also going to be appointed sooner or later in all hospitals and big hotels Many other fields like education, extension and research demand higher qualified personnel from Home Science, and so the Home Science courses should be tailored to meet these needs.

Home Science must cater not only to girls but also to boys as well because a successful working of the Home will need the cooperation of the boy and the girl, and successful upbringing of children will depend on both, the father and mother. Therefore, it is necessary that we must view Home Science from these new angles of vision.

Many boys and girls from the rural areas are now entering the portals of colleges. When they go back to their homes, they will have to share the responsibility for introducing scientific agriculture. Therefore, Home Science has this another dimension of providing for the youth coming from the rural areas, training in scientific agriculture, food preservation, maintenance of poultry, apiary, dairy and such other industries closely related to agriculture.

This is an age of speed and tension. When both husband and wife accept jobs outside the home for economic reasons, they sometimes contribute much tension to family life. In almost all walks of life, whether it be industry, banking, agriculture and in services, there is a possibility of conflict between the workers and management — all of these contributing not a little to creation of tension and disturbance of peace. In these circumstances, cultivation of human relationships, ability to move with people with poise, love, affection and dignity and to put forward one's own view without unnecessary emotion is essential for a peaceful and efficient life This cultivation of human relationships, devotion to duty and dedication to the country should be one of the most essential aspects of our Home Science education. In order to impart these values, Home Science must become an integral part of secondary education. Thousands of Home Science teachers will then be required to teach Home Science.

Dr. Rajammal P. Devadas is one of the great leaders in the fields of Home Science and Nutrition in our country. Her dedicated service in the Sri Avinashilingam Home Science College for over 15 years, her work in the Government of India as Chief Home Economist and later as the Joint Director in the Directorate of Extension, Ministry of Food and Agriculture, her research studies and participation in numerous international conferences dealing with Home Science, Family living and Nutrition and Food have given her a unique experience and background to bring out a new modern book on Methods of Teaching Home Science.

I am happy that she has found the time to write the book in spite of her heavy academic work and the numerous committees and conferences that she has been attending. I hope this book will bring out a new outlook in the teaching of Home Science based on the best in the Indian culture and will be of great benefit both to administrators and teachers.

T. S. AVINASHILINGAM

Coimbatore-20

Sri Ramakrishna Mission Vidyalaya,

PREFACE

During the last few decades, society has undergone marked changes due to unprecedented progress in scientific, social, economic and occupational fields and in communications. Women are coming out in increasing numbers, to take up employment outside their homes. The time available for physical tasks within the home has been reduced considerably. Consequently, the concept of Home Science, which had been traditionally known as a discipline for women, when her place was conceived to be exclusively within the homes, is also changing. As a result, its earlier focus on home-making skills, hospitality and child rearing practices are becoming enlarged, to embrace all other aspects of living in the home and community. Home Science today means preparation for careers also.

With vast technological and economic changes sweeping the country, families and individuals have become consumers of a large array of mass produced goods, such as processed food, clothing, prefabricated houses, toys and labour-saving devices. Home Science is concerned with examining these facts from the consumer's and national view.

The trend towards urbanization is growing. Urbanization has been accompanied by an increasing proportion of women combining home-making with work outside the family. This trend calls for numerous adjustments in the official, personal, familial, social, economic and management aspects within the home.

The occupational prospects of women have become spectacular. No longer are their choices limited to a few occupations. A considerable percentage of married women pursue permanent work outside the home on a par with men. The proportion of women workers in the social services is also rising. In tune with these developments, Home Science has undergone a major reorientation towards the social sciences along with its earlier foundations of basic and applied sciences. These profound changes indicate clearly that Home Science courses cannot any longer be confined to preparing pupils solely for life within the home.

Till recently, Home Science had been taught exclusively to girls in schools and colleges because of its emphasis on home-making and child rearing. With a fast-changing society, men need to share some of the responsibilities of home-making where women go out for work and the increasing need for raising happy families. Home Science can no longer be said to be a discipline earmarked for girls alone. Inculcation for spiritual values, personal hygiene, good grooming, graceful living, nutrition, bringing up children and community services are important aspects of Home Science, which boys also need to learn.

With the changing values in society, migration to cities, influence of advertisements and other mass media and education of women, the joint family system has become obsolete. In its place, there is a rapid emergence of 'nuclear' or 'extended' families. In this changed context, the study of human relationships and population education at all levels, particularly at the formative secondary school stage, has become indispensable

The effects of the physical environment upon the quality of life are far-reaching. Industrialization and modern ways of life have led to an unprecedented pollution of the environment and these are being discussed in national and international conferences. Home Science should reflect these concerns in its housing, design and architectural aspects.

Home Science has a broad inter-disciplinary basis, which includes sociology, biological and physical sciences, psychology, education, economics, management and architecture. *Home Science integrates these disciplines around the central concern for the well-being of the individual in his environment, with strong roots in spiritual and moral values.* It is therefore imperative that all boys and girls in secondary schools receive Home Science education as integral part of their curriculum and not as a mere elective only for girls.

In any system of education, the teacher occupies the crucial role. Spiritually, emotionally, scientifically, pedagogically and psychologically she/he must be deeply committed to the dissemination of the message and methodology of Home Science. With these considerations in view, this book has been written for students to suit the cultural background and patterns of living in Indian families.

I am grateful to the NCERT for commissioning me to write this book; Shri T. S. Avinashilingam, Chairman, Governing Body, Sri Avinashilingam Education Trust Institutions for the inspiration received and permission given, my colleagues, Smt. Maragatham Marudhachalam, M. Sc., M. Ed., Shri N. S. Narayanaswamy, M. Sc., M. Ed., for their assistance in preparing the manuscript; Shri I. Swaminathan, Artist, for the illustrations; Dr. E. G. Vedanayagam, M. A., M. Sc., Ph. D. (Oregon State), Principal, Sri Avinashilingam Teachers' College for going through the manuscript; and Dr. N. P. Pillai, M. A., Ph. D., Chairman, Panel for Teacher Training Literature, NCERT for his interest.

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CHAPTER I

Education in a Changing Society

> *The principal goal of education is to create men who are capable of doing new things, not simply of repeating what other generations have done—men who are creative, inventive and discoverers.*
>
> —JEAN PIAGET

INDIA IS UNIQUE with her great heritage of an ancient civilization. Today she is striving for national development and self-reliance, preserving the essentials of her culture and, at the same time, accepting modern ideas and scientific methods.

The twentieth century has witnessed world-wide social changes. In India too, many momentous changes have taken place in the economic and social fields, since the attainment of Independence 30 years ago : for example, sending rural children to schools, representation for women in legislatures, eradication of untouchability, establishing health centres in the villages and use of new fertilizers in agriculture. Most of these changes—economic, technological and social—were deliberately induced through planned effort. The speed with which these changes have taken place varies from place to place

Economic changes

With the advent of freedom, several economic reforms were introduced. The basic objectives of these reforms are stated in the "Directive Principles of State Policy" inscribed into our Constitution : "The state shall in particular, direct its policy towards securing that the :

(a) Citizens, men and women equally have the right and adequate means of livelihood;
(b) Ownership and control of the material resources of the community are so distributed as to best subserve the common good;
(c) Operation of the economic system does not result in the concentration of wealth and means of production to the common detriment(1).

The Five Year Plans were proposed to realise the objectives of economic reforms. Setting up comprehensive community development programmes, reforms in land systems, taxation as an instrument of social policy, strengthening the cooperative movement, basic and heavy industries and public sector undertakings, expansion of transport and means of communications, establishment of a number of programmes of special assistance to backward sections of the people and a determined and nation-wide family planning programme are some of the programmes implemented under the Five Year Plans⁽²⁾.

The impact of the changes brought about by these efforts on the families is great. Millions of families have become owner-cultivators. Tenancy on land and employment in factory have been made more secure, freeing families from the clutches of the landlords, money-lenders and businessmen. There is greater mobility of the population, both spatial and occupational Use of modern techniques in farm operations have made a dent on the traditional systems of customary obligations and payments of maintenance to attached labour. Regular hours of work in factories and farms have reduced dependence of agricultural operations on seasonal conditions and have enlarged the scope of employment.

The changes have brought some adverse effects also. The break-up of the feudal ties and the consequent mobility of the rural population have led to an influx of people to urban areas. Consequently, the living conditions of large sections of the population in the cities have deteriorated. Economic growth has led to the concentration of economic power in the hands of a few. Ostentatious living by the well-to-do classes initially sets standards and helps to raise the aspirations of the ordinary people. But when the aspirations of the common man and woman are not fulfilled, frustration results. Their newly acquired habits of consumption of luxury articles lead to a drain on their scarce resources and affect adversely the rate of savings. Another important aspect of the disparities in income is the wide gap between the rural and urban incomes, which in turn, causes the migration of population to urban areas and the growth of slums.

Political changes

From the very beginning, the Indian national movement had emphasised a strong constructive programme for economic and social development Swadeshi* was its watchword. Swami Vivekananda, Ramalinga Swamigal, Chidamparam Pillai, Dadabhai Naoroji, Bal Gangadhar Tilak, Rabindra Nath Tagore, Gopalakrishna Gokhale, Subramania Bharati, Sarojini Naidu, Aurobindo Ghosh and other great freedom fighters inspired people through their songs, messages of freedom, constructive work and struggles, and brought about a literary and national awakening. They prepared the stage for the return of Mahatma Gandhi from South Africa in 1917, to start the great epic fight for our freedom. Gandhiji's non-violent techniques of Satyagraha* enabled the lowliest and the humblest in the country to take part in the freedom fight, which led to the organisation of village communities, literacy classes, subsidiary crafts, medical relief and other such welfare services.

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* Swadeshi is that spirit which restricts to the use and service of the immediate surroundings to the exclusion of the more remote or foreign things

The freedom struggle influenced women in a unique way. Women, literate and illiterate, rich and poor, old and young, joined the Satyagraha in large numbers The impact of their participation on the society in general, and on their families in particular, was tremendous. The purdha-system started becoming less distinct, women became free to determine their course of action; laws pertaining to property, marriage age and girls' education were liberalised. In a course of time inter-dining and inter-caste marriages became common.

Since 1947, the year of Independence, five general elections have been held on the basis of adult franchise. Nearly 300 million people participated in the general elections held in 1971 to elect more than 3,000 representatives to the national Parliament and State Legislatures. There was no village in India which did not have an election booth within walking-distance. The interest evinced by women in the elections was remarkable.

The establishment of the Panchayati Raj linked the system of local government at three levels : Village, Block and District. It has introduced a revolutionary change in the structure of administration. Agricultural extension, nutrition, child-welfare and family planning are some of the important programmes under the responsibility of the Panchayati Raj

The Central Social Welfare Board (CSWB) and the State Social Welfare Boards administer the programme for the protection and welfare of the weaker sections of the society : the scheduled castes and tribes. The Boards are presided over by women. Every village Panchayat has a woman member and a committee for the welfare of women and children. As a result, attitudes of rural families towards modern medical facilities, children's education and wage-earning activities are fast changing.

Technological changes

The most striking change in modern times is the change in economic organization due to the creation of modern production and distribution system by the power-inventions and machines of the factory, rail, road, sea and air. Advent of electricity has brought power into the home and has popularised its use in household work in the kitchen, dining-room, yard, library and playroom. Electricity has brought many conveniences strengthening the home functions of recreation and education through radio, television, facsimile telegraph, phonograph, wire and tape recorders and motion pictures. Scientific discoveries in biology and chemistry have far-reaching implications to health, sex and reproduction. A perfect knowledge of the physiology of the human body and its various systems including the reproductive system, chemistry of nutrition, discoveries in natural sciences and psychology of the learning process and the nervous system, forecast great hopes for the family of the future A simple, safe and effective anti-fertility compound which is the subject of much research, might control significantly the size of the family, especially in the over-populated areas, and change sex morals. New knowledge regarding the sex hormones and nutrition has great potentials for controlling the aging process.

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* Satyagraha is literally holding on to truth and it means, therefore, truth force.

Of all the social influences associated with the progress of an individual, his family is foremost. Faith in religion and satisfaction in occupation are among the contributing factors to familiy happiness. Among the many attributes of the family, which enhance happiness, affection is significant. Both the scientific discoveries related to health and the learning process, and the technological advancement influence the two most prominent functions of the modern family—securing happiness for its members and optimum development of children.

Modern technology has radically changed the family organization. It has placed man's work, except in agriculture, wholly away from the homestead and has removed nearly all women's economic duties except cooking, house cleaning and some sewing and laundering. Inventions affecting the birth rate are reducing the size of the family.

The modern ways of production and the communication have made their impact on the family. Power production is now the responsibility of the state and not that of family. The state is also responsible for such functions as the protection of the aged through old-age insurance and provision for the young through schools, child-labour laws, health measures and juvenile courts. The latest methods of transportation have accelerated economic activity.

The employer and the employee and members of a community in general, had a personal relationship, in the days of the handicrafts. They knew each other well, and understood fully the tasks undertaken. Therefore, misunderstandings, lack of sympathy, strikes and boycotts which are so characteristic of the present-day large-scale industry were non-existent.

Mechanization is one of the most striking and pervasive phenomena of our times. Today technology stands for numerous social changes and inventions, such as the radio and TV. All social changes take place through the medium of ideas, which flow from observable facts and fantasies. Whatever be the origin of the technological changes, their derivative effects on the family have been dramatic : for example, the effect of contraception on the birth rate and on morality. Religion has been least affected by material developments, since its essential concern is with non-material values, but even in religion, doctrines have been radically influenced by scientific discoveries and inventions, particularly communications.

Change is inevitable in a technological world What is the relevance of technological change for education ? There are elements in human experience that leap across centuries and cultures and make the material environment irrelevant. It is one of the greatest tasks of education to reveal to pupils these common elements of human experience. For example, printing has had a significant value on politics from 1925 onwards. Today, television has become a tool for adult education.

Technological developments have brought and will continue to bring drastic changes in the socio-economic setting of the family. Because of increased industrialization, families have become consuming rather than producing units. Ease of transportation has made families mobile. Increased scientific knowledge has changed the population picture. People live longer, marry earlier and have more childern. Roles of family members are changing : women work outside the home; childern spend money at an earlier age, they remain paradoxically economically dependent on the parents or elders for a long period of time; and men share home-making activities.

Advances in mass media and communication have raised the levels of aspirations of people. Seeing, hearing and knowing what others have and what is available have increased their wants. Technology and mass production have created changes in the economic structure. Rising income levels, more and varied consumption, increased leisure and use of material gains to promote better living conditions are the result.

One of the obligations of the Home Science teacher is to help her pupils adjust to, and adapt themselves to all these changes that affect the family. Helping them to accept material changes will be relatively easy; but accepting changes in the realm of family values and goals that result from technological change, will be more difficult.

Technological changes have made individuals, families, communities, nations and the world increasingly inter-related and inter-dependent. What happens to one family has implication for other families; scientific innovations developed in the United States of America, for example, have direct ramifications on the patterns of family life all over the world. Increased mobility has increased the possibility for an individual to live some part of his life with or among people whose ways of life are considerably different from the pattern of living into which he was born. Educators are obligated to help boys and girls understand the culture of other peoples—their different ways of living and their basic needs. A Home Science teacher can help pupils acquire this understanding through many aspects of Home Science. For example, when studying Child Development, pupils may do comparative studies of child-rearing practices of various groups within their own community, or those of families of other cultures. Food units can be built around the meal eaten in other countries. If understanding the meal patterns of other cultures aids in broadening pupil's horizons, they should be exposed to displays of recipes or menus which depict national integration. Through the study of food habits, pupils can understand the tempo and ways of living in other lands.

To the extent the Home Science teacher interprets the needs of pupils, the learning experiences she provides will determine whether or not the needs will be met. A field in which the quality of life is being certainly changed by technological advance is cereal substitutes. Another obvious example is in the field of sexual morality. The discovery of a completely efficient contraceptive device has altered society's attitudes to sexual morality. Thus technological change does not alter simply the amenities of life, but also the whole climate of possibility in which intellectual and moral decisions can be made.

Social changes

The social effect of education is great, since education helps to break traditional values and to inculcate new ideas. The effect has been greater on women since they became independent in thinking and enthusiastic in fighting for their privileges. Today there is no field of national activity in which women have not been admitted. Women have entered in politics, teaching and the medical professions in large numbers. In the latest figures of admission, more than 40 per cent of the students admitted to the medical colleges are women.

The engineering profession which was previously wholly monopolised by men, has also been thrown open to women. In the highest government services like the IAS (Indian Administrative Service) cadre of services, there are several women holding offices of high responsibility. A large number of women work as clerks, receptionists, telephone operators and office secretaries. A small number, but effective in impact, is working in other professions such as medicine, agriculture, engineering, law, politics, commerce and banking.

With their entrance into diverse professions, women have found a new economic independence Previously, they were almost wholly dependent for their maintenance upon their fathers, husbands, brothers or sons. Today, taking to professions, they have freedom, which in turn, has changed the patterns of family living and family values.

Out of the exhilaration of the freedom-struggle was born a movement to amend the old laws of marriage and inheritance of property by women. The Hindu Law relating to marriage, divorce, adoption, ownership of property and inheritance was changed The Hindu marriage being considered a sacrament had no provision for divorce. Although a man could marry more than one wife, woman could not. Widows were not allowed 'adoption'. They could hold property only by limited estate, limited to enjoyment during their lifetime with no right to alienate or sell it. Their property reverted to the husband's brother(s). Women could not claim anything by way of inheritance from their fathers, except what they could get as gifts.

The Parliament of free India has made law more equitable. It has conferred upon women rights to hold and have absolute rights over property, right to inherit property from their parents and rights of divorce subject to certain conditions. Previously marriage was limited to one's caste and religion. Legislation was passed to enable an Indian marrying another Indian to whatever caste or religion he or she may belong, whatever region he or she may come from and whatever language he or she may speak. The laws which implemented these far-reaching reforms are the Special Marriage Act of 1954, Hindu Marriage Act of 1955, the Hindu Adoption and Maintenance Act of 1956 and the Hindu Succession Act of 1956. These Acts have conferred on millions of women of India social and property rights which they had never before possessed. These, in turn, became the starting point of a big sociological revolution.

Industrialisation and urbanisation

Industries, small and large, have grown throughout the country after independence. Consequently, thousands of villagers have migrated to the towns, big and small. The twin processes, industrialisation and urbanisation are important social forces which account for the rapid transformation of the traditional societies. They carry with them, not only a changed physical environment which has altered radically forms of economic organisation, but also profound impacts which inevitably and irresistibly influence the social and political organisation and man's thought and conduct

The starting of industries has brought in labour legislation and labour troubles. It has also led to the inevitable development of slums and the breaking of families and castes. These changes have resulted in the disappearance of some of the old values.

Industrialisation has raised the standards of living of the urban population The new cities provide a fairly large number of recreational activities on which the surplus income could be spent. Cinema, art galleries, public parks, restaurants, places of historical importance and fetes all these draw out women from their homes in the company of their husbands and children. These experiences have become almost indispensable in the lives of people dwelling in cities. The family discipline or economic necessity no longer restricts them from participating in such amusements. Thus city life has contributed to the evolution of a new mode of family living, which is inconsistent with the time-honoured rural patterns.

As the goods produced in the factories become available at low cost, the home-made products of the village have become unpopular and many cottage industries have been thus ruined. The self-sufficiency of the village has been destroyed. The old cultural patterns of the village have been shattered under the influence of the new urban ways. Their patterns of living, as determined by food, dress, housing, furnishing and communications have been affected by this new contact. The growth of education and the introduction of motor transport have accelerated the process of change.

Population explosion

Population growth is one of the biggest current sociological and economic problems. The population which was only 238·4 million in the beginning of the century is estimated to be nearing 610 million.(3) India ranks second in population and is seventh in land area in the world.

As the old curses like infant mortality, malaria and tuberculosis have been conquered, the average life span of an Indian has risen from 27 in 1947 to 51·7 years(3) today. Thus more people survive and contribute to the increase of population.

The evils of over-population are many sided. Food shortage has become chronic. Rationing has been introduced in the urban areas. In the absence of sufficient calories and nutrients, people become weak, emaciated and subnormal in their capacity to work. This brings down their productivity in industry. The economic advances that have been made and the wealth created, when divided among the increased population, keep the standard of life of the millions of people static. Thus economic development, which ought to have enhanced the general prosperity of India, could not be substantially increased, because the increase in the income of individuals is utilized not in raising the standards of life, but in feeding the increased number of mouths.

EFFECTS OF VARIOUS CHANGES ON FAMILY LIVING AND THEIR SIGNIFICANCE TO HOME SCIENCE

1. Breaking down of joint families

The spread of education, migration to other areas in search of jobs and work, economic independence of women and increased standards of life have contributed towards making families nuclear in many sections. 'Joint family' meant that all the earning members contributed towards the welfare, maintenance and meeting social responsibilities such as marriage of all the members of the family. Income was pooled, property was held in common and widowed sisters, aunts, mothers and handicapped childern were provided for under this system. With the spread of nuclear families, this social insurance is fast disappearing.

2. Increasing mobility

Today's family moves from place to place unlike the family of the past. It moves because of the job the head of the family holds; for example, the government official is transferred from place to place every three years or less. Even others move seeking better jobs. This affects family life and the development of children.

3. Knowing more people less intimately

Today the family not only moves from place to place, but also communicates to people far away. The social contacts are not confined to the people living immediately around, but extend to those who are scattered throughout the country or even the world Thus the family gets to know a large number of people on its travels and through its communications, but has no opportunity to know them continuously and intimately.

4. Growing individualism

Today men and women are more individualistic than in the past. The woman has equal education, equal political rights and demands, equal social rights. She asserts her role and wants to be independent. She competes rather than complements. She wants to be free from the control of the mother-in-law and others in the family system. Children grow up with self-determination and individualism in the modern nuclear family. They assert their rights as individuals in decision-making and other aspects.

5. The generation gap

The 'generation gap' is with reference to the chronological gap inherent in age groups in successive generations. Naturally the gap is implicit in the differences between the values of youth and adults in the same environment. Rapidly changing trends in costumes, fashions and other mores give evidence for the existence of this gap. The psychological aspect of the generation gap can be summed up as 'communications gap'. This indicates the inability or unwillingness of the generations to communicate effectively with each other

As Anandalakshmy(4) explains, the age gap is natural, biological and inevitable but sometimes it becomes a psychological gap also. Respect for age may become so ritualised that interpersonal communication between the young and the old is blocked. Likewise permissiveness for the young may go to the extreme of discourtesy, disobedience and indifference. In the Indian home, parents are the primary agents of socialisation Their influence on children is still significant. Their codes of conduct and standards of behaviour are internalised by the children and even hero-worshipped. However, the winds of change blow in India also. Youth have started questioning parental values. These differences constitute the inter-generational conflict and the 'generation gap' As individualism in family living becomes prominent, the 'generation gap' makes itself more and more manifest.

6. Changes in housing patterns

There have been tremendous changes in housing patterns, for example, the traditional large houses with large open spaces and symmetrical courtyards, are giving way to compact, rigid, straight, reinforced concrete structures. Multi-storeyed buildings are displacing single dwellings. Consequently, flat terraced roofs have come in place of tiled or thatched gabled roofs.

Sanitary fittings, which even the immediately preceding generation would not accept within the house, are now a must even if close to the living area. Water closets are thus attached to the bedrooms. The kitchen is being increasingly modernised with raised working area against the conventional practice of cooking and eating at the floor level. The family members are becoming more and more interested in interior decoration.

7. Changes in food practices

Food shortage and rationing have changed food habits considerably. Wheat is being increasingly used in rice-eating regions. Agriculturists and labourers who were accustomed to eat coarse grains like ragi, jowar, and bajra are getting accustomed to eating rice. Food adulteration practices have crept in a large measure. Processed food is now more in vogue. Hydrogenated fats like vanaspati are in common use. Brown sugar has given place to white. Aerated and processed beverages and malts are some of the prestige items used by the elite and copied by the common man even in remote villages.

In cities and towns, where milk supply is difficult, large cooperative undertakings for dairy have grown up. They have succeeded in increasing milk supply by organizing dairy farms. But they have mopped the milk in the surrounding and in some cases from far off villages, with the result the villagers who once produced and consumed milk are now selling their milk for money. This has resulted in deterioration of their health, especially of the vulnerable sections of the population.

8. Development of slums

Industrialisation and urbanisation have brought with them the growth of slums with their concomitant problems. Slums are concentrated in the large cities of Bombay, Calcutta, Ahmedabad, Madras, Bangalore and Coimbatore. In recent years big industrial complexes have risen in these cities and many other towns drawing thousands of people for employment. Consequently, slums have developed. Men and women lose their moorings in the slums. Undesirable practices show themselves up with the inevitable results of disorder, drinking and violence.

9. Soaring unemployment

The phenomenal increase in education has given rise to unemployment of a growing number of technical personnel. A large number of graduates is also unemployed.

10. Women taking to careers--their dual roles

The social status of women has changed as a result of their economic status, education and employment. When women work outside their homes, they cannot devote adequate attention to their families and children. They are torn between the two roles maternal and professional. There is tension in their minds because of this conflict. Their children and husbands suffer eventually. Consequently, the discipline of children and their training tend to deteriorate. The well-to-do parents try to solve these problems by resorting to admit their children in residential educational institutions. The real solution can come only when parents are able to give time for the Tender Loving Care (TLC) of their children.

11. The urban environment

The rural community in India although predominantly agricultural and backward, is integrated. The city may have a large population and modern facilities, but not the neighbourliness and internal cohesiveness of the village. Children who grow up in the urban environment with its cinema, newspapers, posters and cheap magazines exhibit behaviour patterns which are different from those of their rural counterparts.

The cinema with its falling standards in morality provides cheap fare to millions of adolescents. The depravity of youth neglected by the parents on the one hand, and exposed to degrading pictures on the other, spells danger to modern society. To improve the type and quality of the cinema, or to wean the adolescents from its influence, is a great challenge to Home Scientists and educationists

12. Rural elite

Social change is an integral part of any society, though the rate and direction of social change differ from society to society. In India there are 73 million youth, in the age group of 15-24 years residing in rural areas. The rural families by and large are tradition-based, without the stimulating influences of education and modernisation. However, the Community Development programmes and increasing urbanisation through industrial growth have created a new community, the 'rural elite'. Thus rural India is undergoing a change. Youth are emerging as prestigeous leaders in political and social life, ushering in positive social changes(5).

13. Explosion of knowledge

In the 20th century, knowledge has increased with an explosive force. Knowledge discovered through research during the last 50 years alone is more than that of the whole of man's previous history. This knowledge explosion pervades all disciplines. It has profound educational implications.

14. Emergence of social welfare services

With the disappearance of the social insurance accorded by the joint family system, the state has to take responsibility to provide homes for destitute women, handicapped children and old people. The problem of the aged is not yet serious, because sons and daughters are looking after them in most places. But it has become a social problem in the urban areas.

CHANGING FUNCTIONS OF THE FAMILY

How do the changes arising out of progress in education and technology influence the functions of the family? Despite the radical changes in form and function of the independence era, with its growth of democratic ideas and universal compulsory primary education, the role of the family continues to be important to the individual. The craving for affection and the need of rearing children have been fundamental factors in making the family an enduring social institution.

The family has traditionally performed many functions fulfilling economic needs, providing a social setting in which knowledge, skills and culture patterns are transmitted, imparting religious training and reverence for worship, protecting the sick and aged and teaching the young. While the primary responsibility of parents is to develop values, attitudes and feelings in growing children to be well adjusted in their personal, family and social life, educational and social institutions can assist and supplement parental guidance In the fast changing society of today, many of these functions have been taken from the family and allotted to other agencies, some commercial and others governmental.

1. Educational function

The family was formerly the only educational institution. It still retains much of this function especially during the early years of the child. As the White House Conference on Children in a Democracy has pointed out, "In spite of the great changes which have occurred in family life ...there is still no more far reaching educational institution than the family" (6).

However, as Ogburn and Nimkoff(7) point out, the educational function of the family has steadily declined. Society has changed from a comparatively simple agricultural and household economy, in which the basic skills were imparted by the parents, to a complex pattern in which the individual must learn other skills in order to adjust. While the school is geared to impart this specialized knowledge, the family cannot compete with the school in this respect. Children therefore begin their schooling earlier, spend longer hours every day in school, go to school for more days in the year, and spend more years of their life in school than before.

2. Recreational function

The family was formerly the principal forum for the recreation of its members Today, the recreational function has been transferred from the home to the movie, theatre, park, beach, atheletic field and the restaurant. Commercial institutions compete with the family for the leisure hours of its members. The family has steadily lost ground as a recreational institution.

In the contemporary family, the mother may work all day and return home exhausted in the evening. The father may have been out the whole day, and return late to settle down to the evening newspaper and the children look to their own age group for recreation away from their homes(8).

3. Religious functions

The family is the first to introduce religion to the child and lay the foundation for his moral standards which will guide his conduct throughout life(9). In the growing secularization of society, organized religions play a less important role than they did a century ago.

4. Protective function

The traditional family was the principal institution that protected the individual through the various vicissitudes of life. In infancy, childhood, adolescence and old age, the family protected its members as best as it could against crises, such as illness and unemployment The family protected the elders also when they became unable to care for themselves. An individual could look for protection from the family at all stages. This function has also now been taken over by other agencies to a great extent.

Thus, family life has changed drastically in the recent past due to the social changes brought about by education, industrialization and urbanization. Some of these changes pertaining to family life listed by Duvall(10) are : (1) rural to urban, (2) large to small size, (3) home production to manufacturing, (4) fixed to mobile, (5) stable to unstable, (6) authoritarian to democratic, (7) rigid to flexible roles, (8) definite standards to indefinite freedom, and (9) communal to at-home-in-the-world.

In the context of these changes the functions of the family as seen by Duvall(11) are to : (1) encourage individual development, (2) provide for personal security, (3) promote freedom with responsibility, (4) foster easy mastery of the tools of culture, (5) nurture sensitivity to and concern for others, (6) provide constructive opportunities for building a dynamic peace, and (7) strengthen the family itself. These functions are a challenge to all.

EDUCATION IN THE CHANGING SOCIETY

In independent India, the greatest contribution to change is perhaps the spread of education. Education is defined as that which society teaches its young to enable them become successful adults. The influence of education on a changing society is far reaching It has two aspects. Fitstly, it is a stabilizer of the society. Secondly, it is an agent of change. As a stabilizer, education reflects the society into the next generation. It is the means by which society perpetuates its values and traditions as inheritance for its citizens. It is also the means by which new knowledge can be discovered and new interpretations given to established ideas. Education has thus both conservative and revolutionary functions.

As an agent of change, education acts under the direction of technological and ideological forces to make each generation different from its parents. At no time in history has there been such rapid and profound changes in the moral and intellectual fabric of the nation as today. Education is sensitive to all these changes. Education is not mere schooling or learning certain skills and subject matter, but it is a dynamic process which is consciously channelled, whereby the desired changes in the behaviour of the learners result as the outcome. The learners, in turn, influence their group or community. As Havighurst and Neugarten(12) point out, education helps to transmit traditional culture patterns. It is an instrument for bringing about the changes which society desires. In its search for truth, education initiates changes.

Society owes its continued existence and progress to the educative process. Since education is a dynamic process, new ideas flow from it constantly to reconstruct and revitalise the society.

Today education upto the primary level is free all over India. In some States like Tamil Nadu, education is free even upto the Pre-University Course. The spread of education at the primary stage has been facilitated by the provision of midday meals and free books to indigent pupils. Millions of children coming from uneducated families, rural areas and from all strata of society are being educated.

The rapid spread of education has brought into existance a new middle class in the course of the last 25 years. Thousands of men and women have been trained as doctors, engineers, lawyers, teachers, technicians and for other professions. These men and women have been drawn mostly from those strata of society which had been previously tied to the land as small farmers or worked as landless labourers. These groups have now learned to like, and aspire for, modern amenities. With such new ambitions, changes are evident in the patterns of living in the rural areas.

The stabilizing culture-perpetuating function of education is best seen in the rural societies, in many villages, where the ancient and almost unchanging culture exist side by side with the dynamic modern culture. In the traditional education obtained through the family, learning to work was like play. Children hovered around elders and copied what they did. They followed their fathers to the fields and helped in farming operations. They joined the women in drawing water from the well or at the bank of the river to wash clothes. They watched the fields and drove away the birds and rodents, helped pick mangoes, gathered vegetables and carried them home. They helped also in harvesting rice and in collecting fuel for cooking. In this way, they grew up doing things. Thus the traditional culture was implanted deeply in boys and girls, by the family and the other basic social institutions, thereby enabling them to contribute their share in transmitting the culture. The same culture perpetuating function is present in the highly developed educational systems of modern societies, especially in the rural schools, which teach the traditional reading, writing and arithmetic and the basic loyalties to family, community and the nation.

Education as an agent of change has manifested itself in modern upheavals by youth. Society that is changing uses education to promote change. A democratic society relies on education more fully than a dictatory society which has other more drastic means of bringing about the changes desired.

In all societies education is first imparted by the family, and other basic social institutions—religious, political and economic. Education provided by schools, colleges and universities is called 'formal education' to distinguish it from the 'informal education' carried on by the other institutions. Formal education in the contemporary society is education both for culture and for change.

The kinds of social changes promoted most effectively by education are those which can be taught readily and those which the society generally approves. New knowledge, technical skills, occupational techniques and modes of living are introduced into the society through education. For instance, the training of engineers and medical practitioners has changed greatly the present day instrumentation techniques. Use of automobiles, household electrical gadgets and vitamin tablets are some examples of social changes which have been brought effectively by education.

The areas of social change least open to educational influence are those in which there is a barrier due to custom or taboo or controversy. Attitudes towards sex relations is a good example of the restricting role of custom. An example of the difficulty in using education to promote social change in areas of controversy is seen in the conflict over medium of instruction. This is an area in which education could and should play a decisive part.

The industrial revolution with its profound social changes was the signal for the development of national systems of education, aimed to make the people literate, and more efficient both as workers and citizens and to inculcate national loyalties. The State operates with a changing society. It uses education to adapt its people to change and to control change in favour of the values of the State.

The economic institutions of a society also use education to effect change. Industry looks to the educational system for the training of workers who will be adaptable to change and for the education of its professional workers—engineers, scientists and business administrators who are the key personnel in modern industrial development. Furthermore, industry uses educational means to train its own personnel for specific jobs Formal education in schools or universities is thus an essential instrument for the promotion of change in a changing society. Educated managers and technical experts spearhead social changes.

Schools and universities present facts and ideas to pupils. Ideas are active. Research workers discover new knowledge. Knowledge gives power. The idea of an electro-magnetic field which occurred to physicists in the early 19th century and gave rise to the electric generator was more influential in promoting social change than any Act of government. These great and fruitful ideas were at one and the same time products of changing times.

Education is capable of originating change as well as promoting changes already planned. The human intellect, when working in an educational milieu and focussing on the physical, social world or ideological world has always come out with some new truth. The new truth has often worked to change society. Education will always work for change, whether in industrial process, religious beliefs, aesthetic standards or other areas of life.

Education can be used successfully to conserve traditional values. But in the modern society, conserving values seems to require changes to be brought about by education. For example, to conserve certain values of the family in a changing society, it may be necessary to change certain situations in the family. Education is a powerful instrument to effect such changes.

Education as the search for truth also results in social change, but generally such changes are not planned in advance. Sometimes they are not even welcomed by the people and those in power.

Education meets the needs and challenges arising out of changing situations in a community. The physical and social needs of the community are many. They are influenced constantly by the intrinsic values and activities of the individuals who compose the society. Progress of education of the individual is influenced by the social and technological changes that are taking place in the community.

ASSIGNMENTS

1. *Study the changes that have occurred in the economic and technological fields in your district since Independence.*
2. *Describe the impacts of these changes on the pattern of family living.*
3. *Compare the patterns of family living and the functions of the family in a rural and urban area.*
4. *Examine the pattern of secondary education in your State in relation to its suitability to the changing functions of the families in the urban areas*

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CHAPTER II

The Philosophy and Objectives of Home Science Education

> *Education is the manifestation of the perfection already in man. Such a manifestation is the outcome of the full development of the individual in all aspects—physical, intellectual, emotional and spiritual.*
>
> -SWAMI VIVEKANANDA

Philosophy of home science

INDIA IS THE LARGEST democracy in the world. Today she is engaged in the task of national development, with her vast area, teeming population and ancient culture. She is meeting many challenges arising out of social and technological changes with courage and vision.

Science and technology have made great strides and brought within the reach of man much material wealth, comfort, pleasure and leisure. But it has been found from the beginning of civilization that while development of agriculture and industries and the consequent increase of wealth enhanced physical standards of life, lasting happiness depended upon the quality of life and values in the 'Home'.

Education gives its votaries a philosophy, which helps them utilize knowledge of physical, natural, biological and social science in the development of character and achievement of goals in life. To educate is to draw out, cultivate and develop the innate talents to the pupil. Education is like a spring from which water comes up again and again, even as it is drawn out.

Each stage of education is important in the development of wholesome personality. The secondary stage is particularly favourable for inspiring the adolescents towards understanding and adopting the attitudes and skills necessary for harmonious personal, home and community living. At this stage, selfhood emerges more prominently in relation to the people around. At the high school stage, pupils begin to dream and think of, and even plan for their future homes. Therefore, educationists in different countries have defined the goals of secondary education in terms of the values, aspirations and living conditions of the pupils. Home Science has much to contribute to general education since it helps to prepare the pupils for a satisfying, personal and community life.

Home Science as conceived by the pioneers who attended the Lake Placid Conference is concerned both with man's physical environment and with the nature of man as a social being(1). The 'Philosophy and Objectives Committee' of the American Home Economics Association formulated the following statement on the focus of Home economics.

Home economics is the field of knowledge and service primarily concerned with strengthening family life through :

Educating the individual for family living;
Improving the services and goods used by families;
Conducting research to discover the changing needs of individuals and families and the means of satisfying these needs;
Furthering community, national and world conditions favourable to family living(2).

In the olden days, education was for the few. The 20th century witnesses a new conception of education in which a certain amount of education is accepted as necessary for all the citizens in the State, and that the State should compulsorily provide it. The duties, men and women need to perform, as members of the home and nation have been recognised and with that recognition, curricula and studies suited to fulfil those needs are being evolved. In India, where large proportions of families are poverty-ridden, education for proper management of the home has become imperative.

There is an increasing trend for married women running the homes along with careers. But neither the schools nor the universities provide the education needed for their dual role. The result is, instead of becoming helpful co-partners in living, they are puzzled and handicapped in managing the home. They learn Chemistry and Physics, but little about the food they have to prepare and serve. They learn English and regional languages but not how to bring up their children. They may know the history of England and of the world, but little about our great cultural traditions. They are taught a great deal of Mathematics without any relation to their own budget. It is important that pupils know all those branches of knowledge which will help them in daily living. Home Science is an attempt to provide such essential knowledge.

Ultimately it is the family, the nucleus of society, which makes the community and the country. If the atmosphere in the home is sound, society will automatically prosper along right lines. Therefore our forefathers had set a high value on the home as the vital unit of the nation, and on its well-being for national progress.

In meeting national needs, the home has great responsibilities. The home has always played a significant role in bringing up children and preparing the future citizens for their roles, in helping men and women adjust to the changes taking place around them, in creating new attitudes and tastes and in inspiring people for great action and accomplishments. The individual cannot achieve much by himself, but buttressed by the influence and support of the home and family, he can develop into a sound personality.

Today, India is facing great challenges and several problems in her efforts towards self reliance. In solving the national problems encountered on the path to prosperity, the home has a decisive contribution. Home Science, which is the science and art of building better homes, can impart dynamism in the families to meet the pressing situations. Dynamism in this context means that knowledge must be adjusted to the needs of the times and it should contribute towards the fulfilment of people's aspirations in the midst of changing responsibilities and performances.

The major task of Home Science is to inspire people with a new idealism and renewed patriotism. If the family functions well, the nation will advance, but if it falters, the nation will suffer. Eternal vigilance is the price of liberty and vigilance means that the people are prepared to offer their best to preserve freedom and protect the country. The history of India is replete with examples of how mothers and wives had inspired their sons and husbands to face grave dangers with heroism and determination. With this heritage, Home Science helps to cultivate courage and sacrifice for the achievement of ideals, and preservation of freedom. This is the spiritual aspect of Home Science education.

National needs are greater production in the agriculture and industrial sectors and enhanced savings so that more money can be invested in production. Avoidance of waste, fuller utilisation of all that is produced, cultivation of desirable food habits to consume nutritional foods so that the nation can become healthier and stronger in body and mind and inculcation of discipline and citizenship qualities are the pre-requisites for a prosperous India. Parents are the pivot around which the family moves. A mother can make the home a heaven of peace and progress or render it a mess of chaos and confusion. In maintaining the culture of a community, the responsibility of the mother and through her the family is great. It is her proud privilege—as well as the onerous duty—to keep the lamp of national culture burning bright. That is why she has been adored as the 'Grihalakshmi', the main spring of auspiciousness in the home and community.

The family ensures the continuity of the species, racial culture, national civilization and social traits. It is the connecting link between one generation and another. Creating a healthy atmosphere in the home is the duty of the parents. As the mother tends the kitchen fire and gets ready the meals for the members, she tends also the cultural fire and provides spiritual food. As she sweeps and washes the house and maintains it clean, she ensures environmental hygiene for her children. A good mother makes the home vibrate with joy, health, piety and religious reverence.

Speaking of the home, Swami Vivekananda(3) said, 'with regard to the domestic virtues, I have no hesitation in saying that our Indian methods have in many ways the advantage over all others.. Still on this sacred soil of India, this land of Sita and Savitri, among women may be found such character, such spirit of service, such affection, such compassion, contentment and reverence as I could not find anywhere else in the world.'

The bright star which Swami Vivekananda held before every Indian women to be guided by was that one paragon of all womanly grace and fulfilment, Sita. He declared .

> 'The women of India must grow and develop in the foot-prints of Sita, and that is the only way . . . Any attempt to modernise our women, if it tries to take our women apart from that ideal of Sita, is immediately a failure, as we see every day.'

The Swami's charge to Indian womanhood was : 'Believe in India, and in our Indian faith. Be strong and hopeful and unashamed, and remember that, with something to take, Indians have immeasurably more to give than any other people of the world.' Such is Indian women's grand destiny. May the tributes and counsel of Swami Vivekananda help women always to discharge fully their sacred responsibilities to the family and nation.

Home Science is not merely a school subject but a unique blend of scientific knowledge, human values, aesthetic qualities, harmonious living, interactions and household processes. The meaning of Home Science is, therefore the meaning of Home and the people living in it(4). All individuals have a home whether married or unmarried, in business or otherwise. One must have an environment to live in and that is called 'Home'. Home Science is the education which enriches that home and makes it meaningful for the members of the family and community. The concept of Home Science is thus complex. It cannot be taught merely in a classroom. While ideals and philosophy can be explained in the classroom, everyday experiences alone can give meaning to the study of Home Science.

The goals and objectives of home science in the high schools

The term 'objective or aim' refers to the ends or broad goals set for any effort. The study of Home Science offers boys and girls general education and opportunity to achieve their three most cherished goals : all-round development of their personalities, preparation for a career and the ability to manage their homes. Successful home and family life and home-making are challenges that demand the best in education. No other educational programme offers opportunities to achieve all these goals at the same time.

Spiritual values are most important in family living. Home Science being built on the solid foundation of the noblest traditions of the past, helps in the discernment and preservation of the best in our precious heritage.

One of the goals of Home Science education is to help pupils lead satisfactory, personal, family and community life through the knowledge, skills, understandings and appreciations learned. Home Science education enables pupils develop the qualities needed for responsible and creative living in their present families and in the families they will establish after marriage.

Another goal of Home Science education in the secondary schools is all-round development of the pupils, their personality, intelligence and abilities. It helps them to set up values, aspire to reach them and find joy in the fulfilment of their aspirations. Therefore, all the areas of Home Science are of great interest to adolescents.

Home Science caters not only to the physical aspects but also to the moral and spiritual needs of the pupils. It helps them to flower as integrated personalities and assume responsibilities and leadership in the society. Because of these values, Home Science makes a worthy contribution to society by :

1. Fulfilling the objectives of general education, namely, education for living, personality development and national service.
2. Preparing pupils for a large number of careers such as teaching in pre-schools, housing, nutrition, dietetics, food service and interior decoration.
3. Helping towards realisation of national aspirations for development, family planning, applied nutrition, child welfare, savings and national integration.

Pupils studying Home Science, with their knowledge and concern for human life and happiness can work effectively and bring success to these national targets.

The role of Home Science in developing the future citizens, inculcating in them citizenship qualities and patriotism and in preparing them for their future roles is significant. Therefore the influence of Home Science must be felt from chidhood, when the foundations for life and its future are laid.

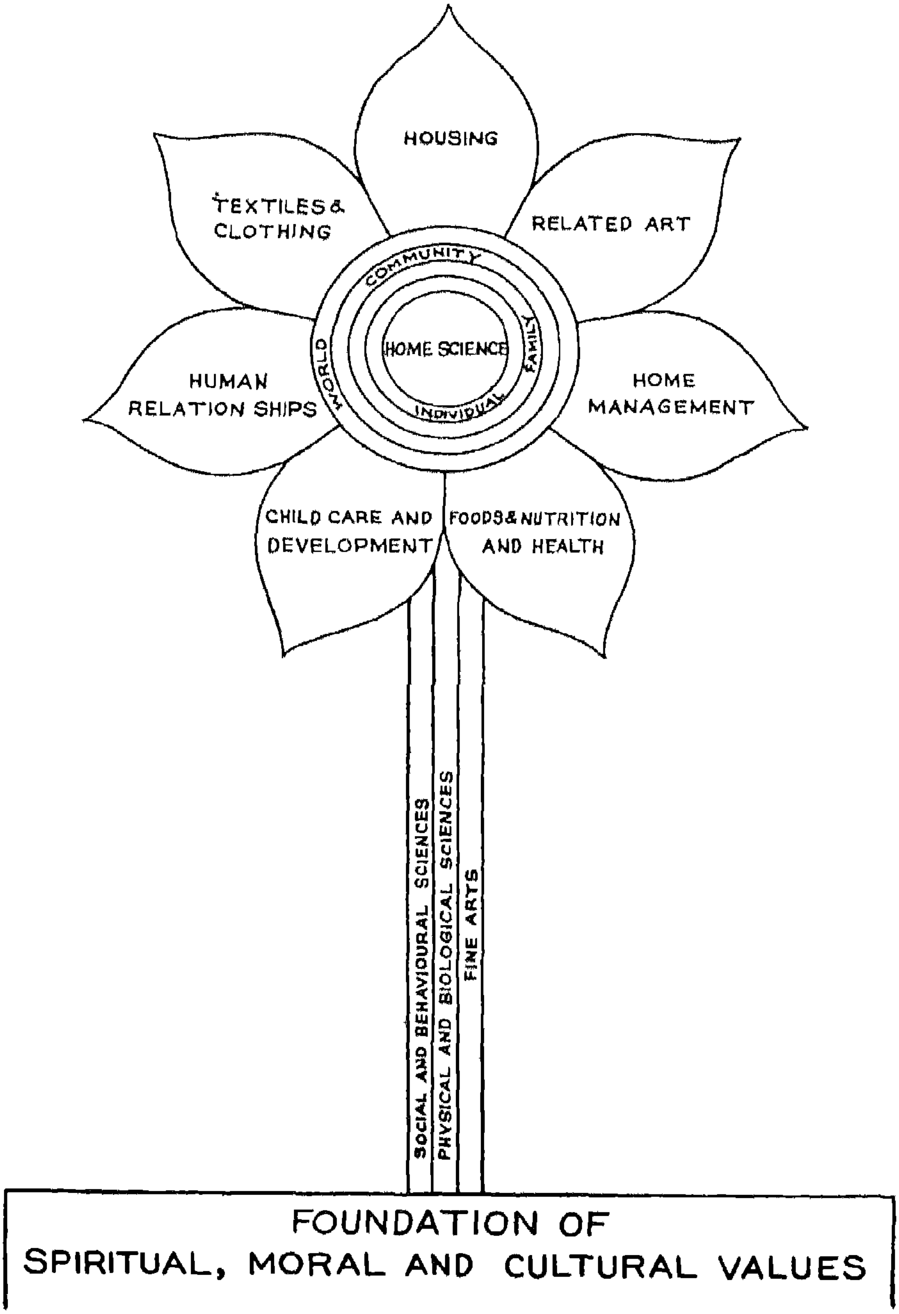
The primary objective of Home Science in secondary education is to impart general education through helping pupils evolve a practical philosophy of life, developing a wholesome personality and acquiring happy relationships. This is the foundation of all teaching. Appreciation of moral and spiritual values and recognition that achievements in life are measured by the happiness and harmony within the family and by the material wealth and gains one attains, are the essentials of Home Science.

Home Science is a unique subject differing from any other subject in the secondary school because it provides opportunities for the pupils to gain experience which will help them to meet the day-to-day needs and problems of home and family living, such as nutrition, spending money wisely, skills in work, care of clothing, promoting family health, sound human relations and looking after children. Problems in grooming, choice of friends, living amicably with others, use of leisure are encountered daily by high school pupils. Home Science education helps them to solve these problems. Home Science is rich in possibilities for inculcating sound citizenship qualities, dealing with responsibilities of boys and girls in maintaining discipline, fostering regularity in school attendance, keeping the surroundings clean, helping the poor, participating in relief work, controlling other contagious diseases and recognizing and modifying the will of the society.

Achieving sound mental health through understanding self and others and acquiring techniques and skills necessary to make adjustments in life and to find joy and fulfilment, broadening and enriching one's life are some of the other objectives of Home Science. Through a variety of experiences, pupils become sensitive to human feelings and considerate of other's needs.

Home Science meets also the immediate needs of pupils and their families. Since Home Science is a practical field, closely related to personal living, all girls and boys need that education. Through the study of Home Science, they get knowledge, skills, understandings and appreciation of cultural and spiritual values.

Home Science education in high schools enables pupils to live joyfully and effectively in their families and in their 'would be' homes after marriage. They learn to use their intelligence and abilities to enrich their own lives and the lives of others in the family, community and nation and thus develop the qualities needed for responsible world citizenship(5).


HOUSING
TEXTILES & CLOTHING
RELATED ART
HUMAN RELATION SHIPS
HOME MANAGEMENT
CHILD CARE AND DEVELOPMENT
FOODS & NUTRITION AND HEALTH
COMMUNITY
WORLD
FAMILY
INDIVIDUAL
HOME SCIENCE
SOCIAL AND BEHAVIOURAL SCIENCES
PHYSICAL AND BIOLOGICAL SCIENCES
FINE ARTS
FOUNDATION OF
SPIRITUAL, MORAL AND CULTURAL VALUES

The ultimate aim of Home Science education is to effect improvements in the living conditions of the pupils based on a knowledge of their environment and its influences on their growth Home Science is therefore vitally concerned with all the activities in the home and outside, as they influence family life The objectives of Home Science education in the secondary schools are thus, to help pupils ·

1. develop a balanced personality, possessing good health, happiness, self-reliance, confidence and love so that they can become intelligent, affectionate and dedicated parents and citizens.
2. sense of responsibility to their homes, community and country.
3. contribute to the economic, social, moral, ethical and spiritual standards of their communities, avoiding wastes of all types.
4. achieve good relationships in the home, school and society.
5. appreciate dignity of labour.
6. acquire the skills and scientific information necessary for managing resources — human and others.
7. express art in daily life.
8. appreciate and preserve the best in Indian culture.

The unique contribution of Home Science to general education lies in that it :

1. has as its first concern, family living.
2. unifies knowledge from many fields in the solving of personal and home problems without minimising the contribution of physical sciences, natural sciences, psychology, social sciences, art, ethics and other subjects.
3. personalises instruction. Every bit of learning in Home Science is related to daily living, namely, our food, our house, our clothing, our relationships, our children, our money and recreation.
4 lays emphasis on acquiring techniques and skills of living. It is not enough if pupils learn the theory of nutrition, but they must also be conversant with the preparation of nutritive foods, and making them available to family for consumption.
5 develops a sense of responsibility, self-reliance, confidence and other good habits and relationships in pupils.
6. develops spirit of civic consciousness and appreciation for our heritage and ancient culture, and
7. show way and means to supplement family income and bring efficiency to family living.

The Secondary Education Commission(6) exhorted in 1952, that for girls and boys, "Education needs to be more closely connected with the home and other communities. It should be more practical and explore the possibility of training the mind through the hands." The National Committee on Women's Education(7) recommended that the needs and problems which are closely related to pupils' life should determine the curriculum for boys and girls and a good curriculum fulfils the following objectives :

- (i) Creates right attitudes in life — individual and social;
- (ii) Imparts useful knowledge;
- (iii) Gives practical training for life;
- (iv) Develops good personal habits; and
- (v) Inculcates a sense of social awareness and a spirit of service to society.

The Committee on Differentiation of Curricula for Boys and Girls(8) appointed by the National Council for Women's Education in 1964, pointed out that since the role of women outside the home has become an important feature of the social and economic life of the country, greater attention will have to be paid to their education on a par with boys. The Bhakthavatsalam Commitee(9) recommended that while the curriculum for boys and girls can be the same, provision should be made for offering elective subjects that would be of special interest to girls. The Education Commission(10) appointed by the Government of India recommended that there should be no differentiation of curricula on the basis of sex. Home Science fulfils all these criteria.

In a number of recent inquiries pupils and young adults in U K. have rated the value of Home Science education highly because of its interest in and relevance to life after school. It is in the fields of personal relationships, social behaviour, management of money, running a home and bringing up children that young people express the greatest degree of appreciation. Home Science should, therefore, become a dynamic part of the high school curriculum with a clear statement of its aims and objectives.

Efforts must be taken immediately to introduce Home Science in all the secondary schools for boys and girls as part of general science or as a core subject. Boys too need Home Science education, since they have an equally important responsibility in family living. They are partners in nation-building. They are as much concerned with health, hygiene, nutrition, appearance, success and human relationships as girls. They need to know how to nourish their bodies; be happy; live within their budget; select, wear and appreciate appropriate clothing, succeed in relationships; achieve their goals and make their contributions to the home and community.

There are several problems in our society which clamour for immediate solution. The appalling extent of malnutrition, the staggering dimensions of illiteracy, the growing menace of population explosion, the expanding evils of environmental insanitation and pollution, the stifling poverty, the enormous amount of waste in all aspects, the spiralling price levels and the crisis of character are problems, the consequences of which are on the increase. Study of Home Science will make pupils sensitive to these pressing problems and maladies, help them to locate their roots and causes, and outline appropriate measures to remove them. Home Science thus prepares pupils for their roles as parents, citizens, leaders and agents of change.

Achievement of 'Better homes and families' is the major goal of Home Science. This goal is achieved through food that is both satisfying and nutritionally adequate; clothing that is both artistic and economical, houses that are convenient, comfortable and beautiful; members of the family who are well adjusted and cooperative(11); parents who understand the care and training of children and happy family relations.

The chief objective of teaching Home Science in high schools, which mark the terminal stage of education for many pupils today, are to help them and their families realise their potentials, identify and develop the fundamental competences required to make them effective in personal and family living regardless of their particular circumstances or that of their families, and raise their levels of living

Some of the fundamental skills and competences required to help pupils towards effective living, as expounded by Spafford(12) and Hatchel(13) are:

1. establishing values which give meaning to personal, family and community living.
2. selecting goals appropriate to the values established.
3. making and carrying out intelligent decisions regarding the use of personal, family and community resources and services.
4. inculcating scientific attitudes and ability to express art in daily life.
5. achieving good interpersonal relationships in the home and community through living, planning and working happily with others.
6. preparing for life through participation with appreciation for

dignity of labour in practical activities including work experiences.

7. creating a home and community environment conducive to the healthy growth of all members of the family at all stages of the family cycle.
8. nurturing the young and fostering their physical, mental and social growth and development.
9. planning and utilising wisely goods within means and without waste, services and other resources and performing other tasks of good home management in ways which will promote the goals established.
10 enriching personal and family life through refreshing and creative use of leisure.
11. taking an intelligent part in legislative and other social action-programmes which directly influence the welfare of individuals and families.
12. appreciate and preserve the best in our ancient culture.
13. understanding and developing appreciation of differing cultures and ways of life.

By developing the competences and skills mentioned above, pupils eventually become efficient and dutiful citizens. They would manage their homes and care for the members, the aged, sick and the handicapped in the home more skillfully than others who had not taken Home Science. Thus pupils are prepared to make their contribution towards the improvement of the economic, social, moral, ethical and spiritual standards of their homes and nation.

Outcomes of studying home science

If the idea of Home Science education is to develop balanced personalities, well-trained Home Science pupils will radiate health and joy; be affectionate and attractive; poised and practical; honest and upright; sound in thinking and making decisions; resourceful and adaptable; tactful and thoughtful; chaste in tastes and skilful in dealing with people. They will be careful in their use of the God-given gifts, time, money, effort and human resources. They will be mindful of other's difficulties and needs, appreciative of their achievements and considerate to their feelings. They will respect dignity of labour. Their attitudes, ideals, appreciations and habits will be directed towards abundant living.

Thus the outcomes of Home Science education help pupils to:

Cultivate deep faith in spiritual values;

Preserve the best in our culture, discarding the useless practices in the traditions of the past;

Prepare towards a vocation;
Make decisions wisely; and
Cope with changing situations in life.

Home science—challange and response

Today's boys and girls will soon be required to exercise their full rights and responsibilities as citizens. In an increasingly mobile society, many will move away from home for further education, marriage and employment. Without the support of a closely knit family, they will have to live independently in unfamiliar surroundings and even among strangers.

Adolescents of today will be the parents of the next generation. They will have to feed, clothe and house themselves and their families, live with others in the home and community and use a wide variety of goods and services It is essential that they are equipped to deal confidently and successfully with the challenges of the times and mature into happy and responsible adults.

The range of foods, fabrics, equipment, services and knowledge itself is expanding so rapidly that contemporary techniques, skills and information will be outdated soon The need to be aware of local, national and international developments which influence family life is increasing all the time. The challenge to know and use wisely the social services and other resources available is great. Young pupils must be helped to develop their abilities to discriminate, to compare and evaluate products, to interpret written and diagramatic information, and to assess priorities in the expenditure of time and money, so that they are not unduly influenced by advertisement and other mass media.

With the employment of married women continuing to increase, men and women have to cooperate more than ever before in the management of their homes, each making a distinct contribution to the shared endeavour It is, therefore, important that both boys and girls have a balanced education which will help them in their dual roles inside and outside the home.

While no other single subject or area of study can claim to educate pupils for all these future needs and challenges, Home Science can, because it is directly related to the pupils and their everyday living. Covering a whole complex of interests based on human growth and development, the home and family, personal relationships, food and nutrition, fabrics and fashions, consumer education, money management, and the immediate and wider environment, Home Science is distinctive of all the subjects taught in the high school. Home Science gives greatest scope for assisting in national developmental efforts, since it is intimately connected with production, consumption and conservation of food and other commodities. Thus pupils studying Home Science will become efficient managers of the nation's critical resources and facilitate the implementation of the Five Year Plans. By offering pupils opportunities for observation and interpretation of daily phenomena, Home Science imparts clear thinking and ability to assess situations and make valid judgements. Pupils are helped also to appreciate the scientific principles underlying any activity and augment human and material resources with sensitivity and confidence.

ASSIGNMENTS

1. *Point out the main features of the Indian philosophy of life.*
2. *Compare the position of women in ancient India with that of the present day.*
3. *Organise a seminar on "Knowledge of Home Science will help people develop a sound philosophy of life to meet the day-to-day needs and problems of home living."*
4. *List the objectives of Home Science education which is based on the Indian philosophy of family life.*
5. *Compile a bibliography on the philosophy of Home Science education relevant to India.*

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CHAPTER III

The Scope and Components of Home Science

> *Home Science is concerned with the attainment of the well-being of individuals and families, the improvement of homes and the preservation of values significant in home life.*
>
> - Ellen Richards

What should be taught in Home Science classes to help pupils achieve the goal of optimum satisfaction and fulfilment in personal, family and community life ? Home Science comprises all those factors and fields which cater to the physical, psychological and emotional needs of the pupils and influence their development and life in the family and community. Through the pupils, Home Science helps families to establish values which are foundations for their health, happiness and well-being

Since the aim of Home Science education is improvement of living conditions of families based on a knowledge of their environment, it is vitally concerned with all the activities inside and outside the home. However, there is a misunderstanding that Home Science constitutes just cooking, knitting, tailoring and these skills can be learned at home. "Why should a child go to school or college for that purpose ?" is the question raised. These misunderstandings and mistaken notions can be expelled by the realisation that Home Science consists of a combination of the understandings of sciences, humanities and the fine arts and their applications(1). What are the sciences that are applied in the home and outside ? Physical, biological and behavioural sciences are necessary because we live in a scientific world. We think, talk and breathe science in this era. Therefore, physics, chemistry, botany, zoology, physiology, microbiology and other related subjects are parts of Home Science The humanities : psychology, sociology, civics and economics are also related to Home Science as they help in understanding human nature and conduct. The applications constitute the components of Home Science, which are : Spiritual values based on the best in our cultural background; Child care and development; Human relations; Nutrition; Household management; Housing (furnishing); Related Art, Textiles and Clothing; Health; Home nursing and sanitation and First Aid.

India is predominantly an agricultural country. Eighty per cent of her population live in the rural areas, deriving their livelihood from the farm. Consequently, national economy is based on agricultural production and proper utilisation and conservation of the commodities produced. In these spheres, adolescent boys and girls have a vital role to play. Home Science includes these aspects also

Spiritual values

Spiritual values which are necessary for promoting intellectual, social and emotional development must radiate from the home. Satisfactions of the physical needs of shelter, food and clothing will become futile if they are not accompanied by spiritual values such as affection and appreciation. Love cannot be purchased with money and the affectionate Tender Loving Care [TLC] of the mother cannot be substituted with paid service.

Child care and development

Homes are the first schools for children. There children learn and practise democracy and good citizenship, and develop leadership. Experiences of early childhood set the stage for adult life. The physical, mental and emotional health of children influences their attitudes and success throughout life Noble qualities such as heroism, honesty, integrity, respect for family, selflessness, sacrifice and appreciation for freedom of action are learned first in the home

Adolescent boys and girls are immensely interested in children. Most of them have younger brothers and sisters whom they help/care for, and some may help to care for other people's children They want to do things with, and for children. Therefore, planning activities and experiences in Child Development classes, for example, selecting and telling stories to children, making toys for younger brothers and sisters, learning about care of the mother before and after the arrival of the baby, and observations on habit formation in children, are interesting.

The units in Child Care and Development impart knowledge on the needs and stages of development of children, how to take care of them and help children to develop physically, mentally, emotionally and spiritually. This knowledge is essential for all the members of the family. Boys and girls need to develop qualities of cooperation, sharing and give and take. Participation in duties pertaining to bringing up children in the family helps to meet these needs and paves the way for understanding pupils role as future parents.

Through practical experiences with, and observation on children, pupils not only learn to understand how children grow, develop, learn and interact with each other and with adults but also to like working with children. Such learnings help boys and girls to understand themselves and others also. They become alert to the factors which influence the behaviour of children.

Human relationships

Human relationships are important aspects of home and family living. Through their experiences in living together, pupils become aware of the importance and ways of establishing and maintaining good relationships between members of the family and among friends; understand the significance of family celebrations, festivals and other important days and consider the effects on human relations of changing patterns in family life. Their study of human relationships would result in fostering respect and appreciation for human personality and worth of each individual

Foods and nutrition

Lessons in foods are adventures in the science, economics and art of good nutrition. Knowledge of nutrition helps pupils to improve their eating habits through wise selection of food at every meal Good food habits result in abundant health, better appearance, capacity for study, stamina for sports and vitality for work.

In the Nutrition classes pupils gain knowledge regarding the different aspects of nourishing the body. They learn to plan, prepare and serve efficiently and graciously, meals which are nutritious, economical and appetizing and to buy, store and preserve food wisely and scientifically.

Experiences such as study of low cost nutritious foods, planning adequate diets within one's means using resources economically, maintaining height-weight charts, judging different methods of cooking and preservation of food to conserve nutrients are important for realising the relationship between health and nutrition. Preservation of surplus seasonal foods can help also to supplement household income, supply food throughout the year even during periods of scarcity, inculcate thrift and savings, develop appreciation for home-made foods, avoid waste of food and overcome shortages during crises and prevent anti-social practices such as hoarding. The study of nutritional requirements, nutrient content of foods and the effects of deficiencies which result when nutritional requirements are not met, will help pupils acquire the urge for and skills to satisfy their nutritional needs and thus combat malnutrition. Wrong food habits, established in early years can be wiped out, during school years by the application of the principles of nutrition and sanitary handling of food. Increasing food supply through home garden and poultry, careful buying of food and avoiding waste in food preparation and dietary practices are some of the possible ways, families can facilitate economic improvement and national development.

The units in Foods and Nutrition help pupils learn the daily food needs of family members, cost of food and how to select, combine and prepare attractive meals to nourish the family. Pupils are helped to make out market order and purchase food. They learn to prepare delicious recipes at school and try them at home to develop more skills. Food classes provide opportunities for pupils to become aware of the relationship between food, health and harmony in family life. The use and care of household cooking equipment and utensils, and management problems involved in providing food also receive consideration.

Home (household) management

Home management is concerned with the ways individuals and families use the human and material resources; energy, abilities and material goods Through the study of home management, pupils acquire knowledge and skills for managing economically their time, talents, energy, efforts, money and other resources to derive maximum satisfaction in life.

Demands of a technological society can be met by the proper use of new innovations in science; for example, use of labour saving appliances in the household. Work simplification techniques will enable pupils physical effort, energy and time and economise the budget in the long run. Experiences in preparing items such as snacks, polishes and insecticides in the home inculcate the sense for economy.

Sound home management means that all the members of the family set up goals and work together, each contributing his share, towards the realisation of the goals. According to their interests and abilities, the father, mother, children and other members of the family plan household work to save time, energy, money and space. Through wise planning, skills and management, they carry out the plans cooperatively to run the home smoothly and achieve the outcomes expected, staying within budget limits. When family living is planned to gear all the activities in food, clothing, shelter, health, education, recreation and worship to the needs and aptitudes of the members, the home radiates joy and harmony and becomes a pleasant refuge from life's insecurities.

Management is vital to every aspect of the family. Planning wise use of the available money, managing food so that every one receives adequate and nutritious food, managing household jobs to save energy, selecting furnishings, arranging furniture and equipment, carrying out the chores of household cleaning, maintenance and decoration, taking care of illnesses and many other activities, which contribute to a well managed and happy home, require highly scientific managerial skills.

Housing

Housing influences the mental and physical health of the family throughout life. Therefore, basic facts about housing designs, furnishings, equipping and utilising available space are important learnings for adolescent boys and girls. How to make use of the available land for producing food and how to convert household waste to wealth are parts of housing. Study of various housing sites, plans, designs and furnishings help pupils understand the principles of good housing and how to fulfil their psychological needs for affection, security, sharing, leadership and tolerance.

Related art

Good taste is needed in daily life to enhance appearance, clothing, furnishings, household objects and arrangements. In classes in Related art, experiences in craft techniques and in selecting and arranging flowers, pictures, furniture and dress accessories are provided. Pupils learn how to decorate their places attractively and make their homes beautiful. Aesthetic values such as appreciation of art and craft inspire interior decoration.

Textile and clothing

Clothes play an important part in living. They reflect personality. They are the medium of expression for creative ability, inward beauty and personal charm. Clothing is not only a necessity, but also a distinction of a country and its people. Seeing a woman in a sari anywhere in the world designates her immediately as an Indian.

Clothing needs differ according to economic status, age, sex and climate. Lessons in Textiles and clothing help boys and girls recognize and solve their clothing problems by planning and selecting suitable, attractive clothing with due consideration for colour and design within their budget. Constructing clothes, adaptable to their needs and abilities, and learning how to care for clothing properly help pupils to save money.

Pupils in high school are interested in their personal appearance. Therefore experiences in Textiles and Clothing classes include : clothing needs of the family, time, effort and money necessary to meet those needs, how to make some garments, removing stains, how to launder clothes and household articles, drycleaning at home, improving clothing storage, protecting clothing from moths and insects, storing clothes properly and knowledge of the aesthetic, hygienic and economic values of clothing. Care of different types of fabrics and stitching garments impart economic values. Selection of clothing based on personal needs and environment and decoration of clothing through stitching artistic designs promote aesthetic values. Pupils develop taste for and confidence in such work and prepare themselves well in advance, for the responsibilities of the future.

Health, home nursing and first aid

Health is the key to happiness. By studying health care and prophylaxis, pupils become aware of the need, "Prevention is better than cure". In order to preserve health, first aid, practical nutrition, skills in the prevention of disease and abilities to care for the sick and meet emergencies with confidence are included.

Maintaining the health of children is the concern of all parents. In Home Science classes, pupils get excellent opportunities and integrated experiences to understand the value of good health and learn how to improve their health habits. For example, in nutrition pupils study the diets needed in health and disease and learn how to prepare foods for the healthy and sick people. How to keep the sick child happy is part of the child development lessons. How to maintain clothing clean is considered in selecting or constructing clothing.

The contribution of the different components of Home Science are described in the following pages.

In the area of spiritual values

Pupils studying Home Science will highlight spiritual values in all aspects by:

1. offering prayers daily.
2. fostering patriotism and pride in national solidarity among the members of the family.
3. giving their utmost willingly and happily for national progress.
4. following Gandhian principles of Ahimsa in thought, word and deed.
5. living in harmony with all people.
6. developing community spirit and eagerness to do social services, avoiding gossip and rumours.
7 leading an orderly and disciplined life as good example to others.

In the area of child care and development

Home Science alerts pupils to the importance of keeping children healthy, happy and secure by :

1 taking care of younger children in the home when their mothers are away.
2 helping children develop self-reliance
3. keeping children constructively occupied when their parents are busy
4. helping in creches established for working women.
5. helping in Balwadis.

In the area of foods and nutrition

Home Science education can help pupils to produce more food and utilise food effectively by:

1. understanding the principles of nutrition and good eating habits so that optimum health is achieved.
2. selection and use of protective foods which are rich in nutrients and at the same time low cost, such as leafy green vegetables, high lysine maize, ragi and many others. This will ensure good health with no additional expenditure on tonics and drugs.
3. use of inexpensive food supplements which are now produced in the country such as the Indian Multi-purpose Food, Miltone and Malt in the place of costly chocolate milks, infant foods, canned foods and imported foodstuffs.
4. use of proper methods of cooking, which conserve nutrients.
5. recognizing the need to avoid extravagance, conspicuous consumption and display of affluence in festivals and entertaining guests.
6. sensitivity to over-eating and thus promote better health, and saving of food and money.
7. preservation of surplus foods to make them available in places and times of scarcity.
8. using every centimetre of space available, for raising kitchen gardens to help increase food production.
9. spreading of the principles of good nutrition in the community.
10. evaluation of food habits born out of social prestige, position, caste and traditional practices in the sensible light of sound nutrition.

In the area of home management

Home Science helps pupils recognise how good management in the home making full use of their resources and abilities can save for the nation by:

1. spending every paisa wisely so that maximum money could be saved for national growth.
2. teaching that saving is investment for future spending and therefore should be willing and spontaneous.
3. maintaining Hundis in which savings can be kept and turned over to development efforts through deposits in post offices and banks.
4. spending time fruitfully so that maximum work can be accomplished in minimum time.

5. spending time productively in simple and creative wealth producing activities such as gardening, spinning, knitting and garment making
6. using time efficiently to release adults from their household responsibilities for more urgent tasks.
7. spending energy profitably so that energy is conserved for noble causes.
8. taking care of personal property as well as school's property to save costs of repair and replacements.
9. contributing labour for social service activities.
10. consuming less to keep the prices down and combat adulteration.
11. practising economy in the use of electricity and other fuels, water and other utilities.
12. avoiding locking up money in jewels and gold.

In the area of housing

Home Science impresses upon pupils the relation of adequate housing to good health and comfort by :

1. understanding the requirements of good housing.
2. maintaining cleanliness in the house and surroundings.
3. avoiding accumulating unnecessary articles in the house and surroundings.
4. contributing all the unnecessary articles for social service.
5. avoiding or eliminating unnecessary furnishings.
6. avoiding extravagance in the use of space.

In the area of textiles and clothing

Home Science helps pupils understand the principles and practices important in the selection, care and repair of textiles and clothing by :

1. having the minimum amount of comfortable essential clothing, regardless of fashions and notions
2. washing clothes properly
3. making clothes attractively.
4. storing clothes so that they give full service.
5. mending clothes promptly to extend their usefulness.

Integrating influence of home science

Consideration of various aspects of Home Science emphasizes how closely they need to be interrelated to help pupils with their home and family problems. For example, providing food for the family is not just a problem of food and nutrition but involves problems of child development. In the same way, other family problems cut across several areas of Home Science.

Family living has spiritual, physiological and psychological dimensions Harmony, comfort, health, economy, beauty and conveniences contribute to the well being of the family. The study of Home Science has, therefore, a wide appeal to pupils who are the future parents, citizens and leaders. It is necessary to include Home Science as one of the core subjects in schools for boys and girls.

Teachers of Home Science face tremendous challenges as they attempt to develop the kinds of programmes that will meet the needs of their pupils. Theirs is the most rewarding vocation since they assist pupils to cope with, and meet the demands of home and family living today, and to make plans for their own homes in the future.

ASSIGNMENTS

1. *Explain the scope of Home Science with particular reference to your State.*
2. *Prepare a chart to illustrate the components of Home Science to neo-literates.*
3. *Describe the contribution of Home Science to the general scheme of education.*
4. *List the applications of science in the different areas of family living.*
5. *Collect the common proverbs in your language pertaining to the different subjects in Home Science.*

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CHAPTER IV

The Home Science Teacher

> *"It is possible for a teacher situated miles away to affect the spirit of the pupils by his way of living."*
>
> —MAHATMA GANDHI

TEACHERS ARE THE ARCHITECTS in building new India. They have a unique role in developing the character and vision of the citizens of the future. Manu, the ancient law giver said, "The teacher is the image of Brahma-the creator".

Teaching is both a science and an art. It is a science because careful planning of objectives, methods, contents, experiences and evaluation are required for good teaching. It is an art, because the teacher needs fine qualities such as sensitivity to the needs, interests and progress of the pupils, sympathetic personal relationship and skills in working with children and adults.

The success of a Home Science programme depends upon the teacher. She should be a great soul characterized by simplicity, sincerity, large heartedness, love and faith in, and deeply committed to eternal values in a changing society. Her ideals and beliefs must be in harmony with her teaching and life, both inside and outside the classroom. Her character is distinguished by patient and sympathetic understanding of pupils, acceptance of criticism when appropriate, sense of duty and emotional balance.

A good teacher must demonstrate that she is a responsible citizen and inspire those whom she teaches to be like-wise. She must recognise the needs of the pupils and encourage their cooperative participation in new ventures and learnings Her relationship with pupils are influenced by her personal characteristics. A teacher who is reserved and 'stands aloof will establish different types of relationships, from one who is friendly and has a sense of humour. A teacher with many fear complexes will elicit responses which are different from those stimulated by one who feels basically secure. In order to be successful, a Home Science teacher should have ability to adapt old customs, promote action and foster the adoption of desirable practices. Since Home Science covers all aspects of family living, catering to the needs of all the members in the family its scope and functions are ever widening. To the extent Home Science teacher is able to be up-to-date with the changes taking place and deal adequately with the needs, changes and circumstances of their pupils, she will find satisfaction in teaching.

The Home Science teacher must have knowledge of the subject-matter : Even more crucial, is how meaningfully she uses that knowledge. The Home Science teacher should participate relevantly in the activities of her community. Besides being an educator, she must be a leader understanding the hopes and aspirations of the people whose children she teaches.

An efficient teaching-learning situation is one in which the emotional climate fosters the harmonious blending of the purposes and interests of the pupils and the teacher. The values of the pupils and their experiences in the class-room should coincide with the goals of the school, families and the society which maintains the school.

An ideal teacher of Home Science brings to the class a situation in which each pupil feels accepted, is at ease, confident of success and responsible for helping others. In such a setting, pupil leadership emerges with strong group unity and self control. The individual pupils grow in self understanding, and select adequately from the environment, the resources and experiences which they can use to further their purposes.

The Home Science teacher needs to realise that the level of communication and literacy in the community is a part of the intellectual climate of the school. If the oral communication skills are not highly developed, the pupils will be less articulate but more at home working with their hands. This is particularly true in the rural areas, where opportunities for learning vocabulary and communications are limited.

The country and the world are changing fast. Advances in science and technology have speeded up the changes, which in turn, influence the patterns of family living. As changes occur, new problems arise, new situations emerge, culture gets new interpretations, old patterns are no longer the desirable. In the midst of the impact of the social and technological changes, the family unit needs to continue to be stable with its basic values remaining unaffected. The Home Science teacher has to recognize this vital need.

Competencies associated with success in teaching(1)

What makes a successful teacher ? The answer to this question may vary according to different situations and the aims, aspirations and ideals of the community. A successful teacher has a good personality, character, high ideals and aspirations, strong academic and professional background, teaching abilities, communication skills, self discipline and vision. The teacher should know what to teach, why to teach, how to teach and how to achieve harmony between the goals of education and the needs of pupils. She needs certain competencies to supplement and reinforce her training as teacher.

Maintaining optimum physical and mental health

Teaching Home Science in secondary schools is a strenuous occupation. Therefore it is essential for the teacher to maintain her physical and mental health at optimum levels. Every Home Science teacher gives instruction to her pupils in the simple rules of health such as adequate diet, appropriate exercise, rest and relaxation. She stresses the importance of cultivating a sense of humour, friendships and developing leisure time interests. But, unless the teacher implements these lessons in her life, her teaching will be fruitless. Keeping physically and mentally fit should be high in the list of her competencies.

Acquiring breadth and depth in knowledge

To teach Home Science effectively, the teacher needs to have up-to-date knowledge in all the subject-matter areas associated with an adequate Home Science programme. Furthermore, she needs to have broad education in several other fields of knowledge, such as the natural and physical sciences and humanities to augment the Home Science programme, which includes spiritual values, food, nutrition, child development, clothing and housing, health and home care of the sick, management of income and other resources and personal, family and community relationships. Ability to interpret and apply the knowledge acquired and correlate it with other disciplines, constant self evaluation and aspiration for continued professional growth and excellence are the marks of depth of scholarship

Developing and utilizing a philosophy of life and education

Every Home Science teacher needs to have a sound philosophy of life, and of education as, basis for her thought, action and profession in accordance with the beliefs and cultural background of the community. She needs to know herself, what she stands for, her goals, her profession, what she wants and is willing to work for and how she can adapt herself to the world around her. A philosophy of education is generally related to one's own philosophy of life, emerging from personal background, experiences and beliefs. That philosophy should guide constructive action.

Teaching effectively

Teaching effectively is probably the most important of all the competencies required of a successful teacher. Since effective teaching deals with the needs, interests and abilities of pupils as individuals, it requires knowledge of the environment in which the pupil lives, the developmental problems he faces and his mental abilities. It also calls for an understanding of the learning processes essential for creating an environment where learning can take place and for making instruction so stimulating that every pupil will want to learn. Stimulating pupils to think critically, independently and creatively is essential for effective teaching. At the same time, it should be possible for the pupils to get their doubts clarified and to develop their abilities to express themselves and to understand others.(2)

For effective teaching, the teacher should possess clear and well modulated voice, simplicity and fluency of language, ability to motivate the class and create interest among pupils to learn and ability to communicate information. Her teaching abilities will be indicated by the preparation of lessons, selection and use of appropriate teaching methods and audio-visual aids, awareness of individual differences in pupils, identification of the slow learners and the gifted, perceiving the pupils' points of view, diagnosis of weak areas and carrying out remedial work, helping pupils towards creative thinking and creative work and maintaining discipline.

Accepting the professional role

A successful teacher accepts her professional role in the field of teaching. This role has been defined clearly in what is known as the 'Professional code of ethics'. The codes define in general, the teacher's responsibilities in terms of her relationships, for working cooperatively with professional associates and active participation in professional organisations It is highly desirable for every Home Science teacher to become a member of the Home Science Association of India. The history and details of the HSAI are given in Appendix I.

Personality traits

An imaginative, vigorous and cheerful personality with reverence for truth and capacity makes a good teacher. She possesses a good speaking voice, self-control and earnestness. She expresses her ideas lucidly and easily. She is mature and uses her resources for purposeful activities. More than in good looks, the personal attractiveness of a teacher lies in character, conduct, behaviour, physical and mental energy, enthusiasm, vitality and alertness. A good teacher is sociable, appreciative, and pleasant. The teacher's good personality is expressed through her neat, tidy and simple dress and appearance, modesty, self control, depth of scholarship, wisdom and positive attitudes towards pupils, colleagues and head of the institution.

The good teacher, smiles and comments favourably when working with pupils and colleagues. She is a good leader, who influences the attitudes and actions of pupils and helps them to release their creative talents. A good Home Science teacher has respect for others, and is sensitive to the moods of the group with whom she works. Intelligence and integrity are the hallmarks of her leadership.

Teacher's contribution to the school and community

The quantity of education can be determined by legislation, but its quality depends upon the teacher. A school justifies its existence only when it fulfils or achieves the purposes for which it was established. It is alive to the extent, the teachers who administer it are alert to the community's goals. The teacher's centre of interest is the pupils in the class. The teacher's contribution to the functioning of school is what she makes it.

Much of the teacher's professional satisfaction depends upon the goodwill of the community. Since the teaching of Home Science involves contacts with many types of people, initiating, establishing and maintaining satisfactory relationship with community is important. Ability to understand and get along with the community and to make allowance for individual differences are some of the fundamental skills which a teacher needs to develop. These skills are essential in daily life, whether on the job or after school hours.

The teacher needs to be aware of the changes taking place in the community. She herself should be personally adjusted to the changes and orient her teaching towards utilising the changes for the constructive good of the society, not only for the present but also for the future.

The channels by which a teacher can communicate her views to the community are : parents; children, social service organisations, teachers' associations : school councils, welfare boards, extension services; women's associations; recreational clubs; local administration like the Municipality, elected and other leaders; press; radio and other media. The teacher can communicate her ideas through these channels either by bringing them to the school, and/or by going to the community.

The school is a miniature community in which interpersonal relationships between the teacher and the taught play a great part in determining the success of the teacher. The teacher demonstrates the concern and responsibilities of the school to the community, in the form of new ideas with profound respect for leaders, democratic relationships and sincere and consistent loyalty to God and country.

The Home Science teacher makes a unique contribution to the total education of pupils by serving them individually at all age levels. She specializes intensively to bring the heterogenous pupils to the educational environment. In the Home Science classes, they are prepared to understand the breadth and depth of the questions which a citizen of the 20th century democracy should know. More important than a body of general information is the development of a quality of mind which is thinking, questioning, anxious to discover truth and know how to use it. The teacher achieves this by pursuing a few subjects to maximum depth, and others not in such depth, but with efficiency to be useful in later work and life. She exposes the pupil to a wide range of stimulating activities to learn to read for himself, to argue rationally and to be aware of some of the ideologies and trends of the times. Through a dynamic programme she meets their basic needs and concerns. She adapts her teaching to the requirements of social and economic changes influencing the home, school and community. She elicits the cooperation of pupils, parents, teachers and others in planning and implementing her programmes. With her life as an example, through her lessons, practical demonstrations, related home experiences and sustained contacts with pupils at a crucial stage of their life, that is, when they are eagerly anticipating homes of their own, the Home Science teacher integrates all the activities and experiences to bring about efficient management, mastery of skills and sound human relationships in important life situations.

ASSIGNMENTS

1. *Let pupils organise a seminar on "Qualities Seen in a Good Home Science Teacher".*
2. *Prepare a check-list to assess your efficiency as a Home Science teacher from the pupil's point of view.*
3. *Study and specify the aspects in which the Home Science teacher can help pupils relate Home Science to their home situations.*

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CHAPTER V

The Relationship Between The School and The Community

> *"The great thing to keep in mind, is that through the various school activities, the entire spirit of the school pupils is renewed, to affiliate itself with life. The community becomes the child's habitat, where he learns through direct living "*
>
> —John Dewey

"Community", refers to a group of people living together in a natural geographical region with its own physical location and setting, institutions, customs, traditions and cultural problems. Common interests, ways of thinking and acting make the residents of a locality feel bound together as a community. In the modern society, no community unit can be self-sufficient. Each unit needs the products of other groups and areas, and the services of the individuals and agencies therein. Education helps pupils to understand the inter-dependence and inter-relatedness of communities at the local, regional, national and international levels.

The school is a formal educational agency in the context of other formal and informal influences such as the governmental programmes, Bharat Scouts, and Guides, radio, movies and the press It is 'an idealised epitome' of social life. The school programme to be meaningful, should stem from the needs of the community. It should be made by, and for those whom it serves. It is a social institution set up by the society for the purpose of educating children, so that they may be able to participate intelligently and effectively in the community. This implies that the school must be connected with the life of the community to which it belongs.

Community and the school are two intimately related pillars of society. They can supplement and complement each other in many ways. The school can serve the community through its educational, recreational and cultural programmes. The community, in its turn, can help to enhance the status of the school and provide pupils real, dynamic and interesting opportunities for learning. This two-way traffic between the school and the community is essential for imparting meaningful education. Only then, pupils will get first hand knowledge of and acquaintance with the farms, factories, shops, parks, offices, schools and other organisations. A school which has adopted this two way process of school-community relations is truly a 'Community school'. For this purpose, the teacher should study the community, use the community, serve the community and involve the community in the educational process. Such school-community relations are invaluable assets to teaching.

One of the broad functions of education is helping pupils preserve the best in the life of the group and improve it through enlightened educated members participating in its activities and sharing its concerns. Since the school is a miniature community, pupils learn how to live happily with others, by first learning to live within the school community. Thus community can serve as a wonderful curriculum laboratory for the school.

The ultimate purpose of the school is to produce good citizens for its society. Schools are social institutions and hence should be responsive to the needs and interests of the society, both in the broad sense and in the community sense. In the words of Ross(1), "The individuality is of no value and the personality is a meaningless term, apart from the social environment in which they are developed and made manifest".

The school as a community centre

Education is a proceess of growth—growth not merely along the intellectual lines, but also in terms of civic, social, vocational and recreational bases. It is a never-ceasing process. The scope of education is wider than what is ordinarily included in the school curriculum. The content and activities of school should be deep and broad, extending beyond the school to the community so that school may ultimately become a "People's centre".

The school as a "Community centre" should be a community forum, a place where the members can meet for frank and orderly discussions pertaining to the well being of the school and the community and arrive at decisions of far reaching importance. The school should provide for the reading and recreational needs of the community.

In the early years of childhood, the family is the primary educational source. The next influence on his learning comes from his immediate community which is as complex as that of adults. As the pupil develops his concepts beliefs and ideas are directed by community influences. If they are positive, their effects will be favourable upon youth. The many secondary groups in which boys and girls receive their education may be different in emphasis, scope and purpose, but their influence is decisive.

The communication facilities in the community today, are the radio, movies, drama, newspapers, magazines, comic books and television in some instances. These provide opportunities for the community to communicate to youth, the way they feel, think and act and to have a feed back from them as to the nature of their reactions and responses. These facilities serve as important educational and recreational influences. As the voice of the community, they not only influence, but also, direct, channel and divert the ways in which young people move. Other forces, such as political organizations and social and religious groups, also have some influence on moulding the developing behaviour patterns. In this background, the school performs a significant educational role.

Formal schooling is only a part of the much more inclusive educative process in which the community plays a definite role. The functions of the school are thus broader than that what is understood at present. They bring the school into close relations with the surrounding community.

How to make the school a community centre ?

The basic responsibility of the school is twofold, firstly, to the young people it serves and secondly to the society which supports it, a society whose needs and demands reflect its basic ideals, experiences and immediate and prospective circumstances.

The school can serve as the centre of social education for the continuing educational activities of the adults. It can coordinate community forces towards action through two tasks: Define the roles of the school and community as precisely as possible and define the respective responsibilities of the school and community for fulfilling their roles thereby developing effective means of communication between the two.

The school must be alert to win community support. This can be done by maintaining a warm, welcoming school atmosphere, being sensitive to the immediate and imminent problems, and getting parents and teachers work as teams. If education is to be dynamic, it must reflect social growth and changes in its methods, curriculum and ideology. The school should become an embryonic society to serve this sacred purpose.

However, under the prevailing socio-economic and educational constraints, the school remains separate, compartmentalized and isolated from the community. Sheltered and protected from outside interference, it carries out the specialised job of training children's minds and teaching them some intellectual skills, without vocational and integrative bases. The present day functions of the school regarding teaching and examinations also require that it operates without the involvement of the community—whether large or small—in the neighbourhood.

A Home Science teacher whose major goal is to help families live more effectively, needs to be aware of the various community forces which determine the quality of family living, and the influences which shape the personality of the young adolescents. Only when the teacher knows her community, she can adapt the Home Science programme to meet community needs. Furthermore, knowing the resources available in the community, will help the teacher to enrich the learning experiences offered to her pupils.

The teacher of Home Science has to play a vital role in the fast changing modern community, when India is passing through an era of national reconstruction. The teacher needs to be a living model in the community, for what she teaches and preaches in the school. Her ideals should be in harmony with, and permeate through society.

The school can become a centre for community services and be related to the life of the community effectively in the following specific ways :

1 *Making the school a spiritual centre*

Bhajans, kathakalachepams and religious discourses foster harmony.

2. *Formation of Parent-Teacher Association (PTA)*

Every school should form the PTA (Parent-Teacher Association) and involve the parents in its constructive and progressive programmes. It is the duty of the school to maintain high the tempo and activity of the PTA. The school can volunteer to arrange excursions and field trips for parents through the PTA.

3. *Developing curricula related to life*

The curricula must be related to life in the community, choosing appropriate educational experiences within the school and outside. The contents of the various subject-matter areas of the curriculum should be planned in consultation with parents and integrated with the problems of the society such as, augmenting family income, earning while learning, managing the household, fighting malnutrition, maintaining health, removing illiteracy, combating infection, eradicating household pests, fostering harmonious relations in the family and increasing savings.

4. *Organising the school as a social, recreational and cultural centre*

Social service clubs should be organised in the school to enable pupils participate effectively in community activities. Through lectures, talks and discussions on various subjects of common interest, current problems of the pupils can be solved through co-operative effort. Recreational programmes such as games, dramas, puppet shows, and films which reveal facts of life may be organised for children and adults. Cultural exhibitions, tours and exchange programmes can be promoted.

5. *School as a centre of adult literacy*

In our country the literacy rate is very low. The school and its pupils can help in promoting literacy. The Home Science teacher can conduct adult education classes for parents in the locality, thereby providing opportunities for further education for those who had missed their chances of schooling in their early years. Organisations such as literacy agencies and co-operative societies may be allowed to hold their meetings in the school rooms.

6. *Celebration of local and national festivals*(2)

Festivals should be organised in the school premises and the parents and public invited to participate in the celebrations. The practice of declaring holidays on festivals must be changed to constructive action programmes.

7. *Involving the public in the school programme*

Resourceful persons with different abilities and specialists in the community may be invited to address the pupils or to give programmes on specific topics. The local authorities, legislators and social workers could be invited to visit the school and be exposed to the school curriculum and activities.

8. *School as a promoter of official and voluntary community activities, campaigns and rural programmes*

The community may use the school as a centre for radio-listening forum, screening of films, exhibitions and other such educational activities which need the use of several audio visual and other aids.

Demonstrations on current topics may be arranged in the school. Campaigns for vaccinations, small families and health care may be carried on in the school. The Home Science teacher can help to mobilise and monitor applied nutrition and extension programmes in the nearby villages. She can tap the resources in the villages and channelise them towards social service. She can help the community development programme, organise Mahila Mandals and Youth Clubs and demonstrate to them the components of elegant and comfortable living through simple energy saving techniques and aesthetic and economic projects. She can help towards increasing income through home production activities such as needle work, crafts and toy making. Topics of current concern such as avoidance of waste, use of local resources, meeting shortages, economising use of consumer goods, combating food adulteration and others can be discussed in meetings organised in the schools. On such occasions, useful displays and exhibits may be put up for public information.

9. School library and reading room

Parents in the community should be encouraged to utilise the school library and the reading room. The school library can issue magazines, and other relevant literature to the community. Bulletin boards may be set up to display the daily news and other useful information about the community, district, state, country and world.

10. Organisation of Balwadies

The Home Science teacher can help to organise Balwadies in the community.

11. Nutrition Education

The Home Science teacher can help substantially in nutrition education of the public to increase food production, change food habits and use balanced diets. She can educate the community regarding the relationship between good nutrition, health, work, sanitation and civic affairs.

12. Undertake fact finding surveys and evaluation studies in the community

Through these and numerous other ways, the school should extend its vision and mission to the homes of the pupils and look beyond their homes to the community. As John Dewey remarked, "What the best and wisest parent wants for his own child, that must be the community want for all its children".

Pupils learn citizenship through both the formal school setting and informal contacts. The Home Science teacher needs to appraise the informal educational influences of the community on her pupils and relate them to the formal learnings in the class room. Boys and girls need to be stimulated to think, talk and act in a democratic manner in the school setting, in order to wipe out the undemocratic habits to which they are exposed in the community. All the activities in the community which influence the growing individual need to be converted to be educative. Hence the teachers' work includes the task of educating and influencing the community, besides those within the four walls of the classroom.

The teacher's role in the community

The role of the Home Science teacher in making the school a community centre for promoting healthy and happy homes is tremendous. The teacher's functions in the community are:

1. making the school a community centre and serving the community through the school, securing the cooperation of the parents and giving parents opportunities to assist the school.
2. interesting the members of the community to take an effective part in the school activities
3. providing opportunities to the members of the community to make their contribution to the school.
4. representing the school and its ideals in the community.
5. promoting hygienic conditions in the locality and civic consciousness in the community.
6. helping the parents to realise the talents of their children.
7. being a source of information to the members of the community.

The teacher can fulfil the above functions through:

1. reaching the community with the assistance of pupils.
2. visiting homes of pupils and observing their home conditions.
3. inviting parents for functions in the school and making them feel at home.
4. enlisting parents' co-operation and participation in school activities.
5. taking suggestions from parents for the improvement of the school
6. inviting leaders in the community to preside over important school functions
7. organising social service activities in the community particularly in the area of sanitation, nutrition and child care.
8. arranging film shows, exhibitions, lectures and other educational activities for the community.
9. organising benefit sales.
10. participating in meetings of the Parent-Teachers' Associations.
11. getting parents representation on school boards and management.
12. getting contributions from parents for the school magazine.
13. allowing the use of the school building by the community for educational purposes.
14. having a special event for parents on the Annual Day, Sports Day and other special days of the school.
15. providing occasions for the parents to contribute in cash and kind, time and talents to the school.

The teacher should associate herself consciously with the pupils' parents, and help them understand the school situations and provide their children the necessary supplementary experiences in their homes. She should maintain close relationships between the school and community, with her pupils taking part in desirable community activities. She must strive constantly to find out the best combinations of school and community experiences for educating her pupils.

Teachers can learn facts about families in many ways such as living in the community in which they teach; getting to know intimately the families of their pupils; and becoming active members of community groups. Teachers may also obtain information from their pupils about the size of their families, occupations of family members and home activities. Visits to pupils' home will enable teachers to get acquainted with parents and other family members and enlist their co-operation in planning desirable learning experiences in the Home Science classes. All these will help teachers to understand pupils' problems in the light of the values held dear by their families. Understanding homes and families will help also to base Home Science programmes firmly upon the realities of home and family life as they exist in the particular community. Many means will have to be used to get this understanding.

ASSIGNMENTS

1. *List the resources available in your community. Show how they can be utilised in your teaching.*
2. *Suggest the different ways through which your school can serve the community.*
3. *Plan a project to start an Information Centre in your school through which information on nutrition can be disseminated to the community*
4. *Plan an annual programme for the Parent-Teacher Association of your school, to highlight family living.*

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CHAPTER VI

Understanding Adolescents

Youth is the period of building up in habits and hopes and faiths.
— John Ruskin

Pupils in the secondary school are in the adolescent stage which is an important period in the development of an individual. During these years, boys and girls normally make marked progress in their development from dependence to independence, from irresponsibility to responsibility, from attachment to adults to friendship among peer groups, interest in their own sex to sociability and from uncoordinated goals towards an integrated personality. Information regarding the development of adolescents is indispensable to the Home Science teacher to guide in the selection of goals and action oriented experiences towards their fulfilment

A child is born with capacity to appreciate the good in any phase of his life. The type of values to which he eventually responds will result from the effect of environmental influences, the attitudes prevailing in the home, the teaching which he receives at schools, the community organised and commercially offered opportunities surrounding him — all play their part in the development of the adolescent. His aesthetic and idealistic appreciations are enhanced as he begins to understand and respond to them emotionally. Growth and development of the adolescent involves several phases — physiological, social, psychological and emotional.

Physiological development

By the time a child reaches the age of 11 or 12 to 14 years, certain physiological changes become mánifest. Some boys and girls may display physiological and social development to a degree beyond what might be expected for their age. The growing up processes operate to bring about changes not only in the experiences of the child but also in their effects upon his social relationships. Consequently attitudes of others towards him and his attitudes towards them change. Ado'escence is a proving ground wherein young boys and girls can be guided towards making adjustments to these changes and helped in patterning their behaviour to leave childhood behind with a realistic understanding of their future responsibilities. The growing apart of boys and girls that is characteristic of the later years of childhood, is due to developing sex awareness and self consciousness.

Parental attitudes need to change according to the changes encountered by the adolescents Many parents resent losing hold over their children when they emerge from childhood. Their continued activities with boys and girls of their own age are no longer tolerated nor can they accept the concentration of the adolescent's interest and attention upon the one person in the opposite sex. Parents cannot face the fact that the interests of adolescent boys and girls in the opposite sex are normal and are a preparation for adult participation in marriage relations and building of homes.

Social development

"Social development is progressive improvement of the pupil in the context of social heritage and norms and conduct patterns of reasonable conformity with this heritage. Viewed thus, social development implies that growth is progressive and even an adult does not remain static socially(1). Social consciousness and character are the outcomes of such change, registering individual activity consistent with the nature and stage of the growth pattern, and the environment in which maturation takes place.

"The home continues to be the primary and indispensable unit exerting its force on the individual from the determinative weight of his early associations in conditioning later conduct. Watson and others point out that the potency of early conditioning received long before the child reaches the school age, overlay his native tendencies heavily with a superstructure of conditioned reactions. It is the duty of the school to attempt to change the undesirable, socially ineffective or even detrimental aspects of the early conditionings(2). In order to achieve this change, teachers and administrators must understand the social environment of the child when he enters adolescence.

Like the home, religion also exerts an important influence on the social development of the child. It determines the direction of the social functioning of the individual and his social attitudes. This beneficial contribution of religion is not likely to change in India in the near future, despite the many factors operating to alter it.

Beginning with the home and continuing through the schools and other social institutions and society at large, the adolescent is influenced at every place and time. Society has set up standards and rules for the adolescent's conformity. Social groups have established controls to conserve the standards. As a social institution the school is second to none, in monitoring the growth of the pupil. It is the most powerful agency that government and society have set up to foster the social growth and functioning of the child. Adolescent boys and girls whose behaviour does not conform to peer group expectations are not popular among their school mates. They are isolated. Popularity in school is usually based upon the possession of personal qualities that are in conformity with teen age ideals and standards.

Psychological (mental) development

"The extent to which a high school pupil can be helped to achieve values, appreciations and higher levels of understanding is dependent greatly upon the factors of intelligence, mental ability, age and to some extent sex"(3). The slower the functioning of his mental processes, the less able he will be to react to those subtle nuances that must be understood.

The pattern of mental growth is not identical for all individuals. Neither is the pattern the same for all mental functions. Thus the age of cessation of mental growth will vary with different individuals and with different mental functions. The age at which individuals cease to grow in intelligence has been estimated from thirteen and a half years to sometime in the twenties or even much later(4, 5). These differences may account for the differences in the mental functions measured by intelligence tests and perhaps performances in school. Where speed is an important factor, the older adolescent appear to be at a disadvantage. Where information or logical thinking is conceived, he may be at an advantage.

An important feature of mental growth is the acquisition of concepts. The perception of space and distance is such a common feature in every day life that adults are inclined to look upon it as an outgrowth of maturation alone with little or no consideration to the importance of experience.

Concrete and direct experiences are important to problem solving activities of children. As children grow older, there is a significant increase in their ability to state a problem in words and to verbalize its solution. The seven year old who is concerned with fair play in games with other children and just cries when he does not get a chance, may verbalise fair play on an impressive scale involving a series of activities at the age of 15. The same mechanisms of problem-solving are to be found at different age levels. Problem solving ability improves with age in terms of both speed and accuracy.

Research conducted during the past several decades on the development and use of intelligence tests has yielded valuable information about the wide variations in the mental growth of adolescents. These variations may be due to individual differences in patterns of development;

psychological and social forces; environmental differences and the nature of the tests used in evaluating intelligence.

Emotional development

The emotional expressions of the adolescent are different from those of the pre-school child. The adolescent is entering a new life with emotional currents. He loves his family, but often, his behaviour may indicate just the opposite. To his parents, the adolescent is still a child to be cared for, watched over and controlled. To himself, the adolescent is an independent adult who wants to try his wings, explore unknown fields of activity and make his own decisions concerning his clothes, choice of friends and social life in general. Both parents and adolescents become distressed by the struggle for mastery between them.

The teacher needs to be alert to the conflicting family situations while teaching any subject or skill. The adolescent may discuss at length the lack of understanding in his family and the undesirable behaviour of a brother, sister or other relatives. The teacher will have to listen to his woes with patience. She should be concerned more with the larger objective of education to help the pupil realize his potentialities as a person, learn to face reality, accept himself, live comfortably with his own thoughts and feelings and get along amicably with others, than in the mastery of the subject-matter. To achieve these larger goals of education, it is essential that the learner is helped through his experiences at school to grow in understanding of his own emotions and those of others and thus succeed in developing an integrated self concept.

In the lives of youth, the school is probably second only to the home as a basic influence on the feelings he acquires with regard to himself and others. The learner's intellectual possibilities are conditioned to some extent by his emotions. If his emotions are fettered, his mind will not be free. This explains why pupils may do poor work at school because of emotional disturbances at home. The school cannot ignore this possibility. If the teacher sets aside the emotional components, she will let the pupils proceed from the schools into adult life with fear, grievances and self-punishing attitudes. At present a big gulf exists between the academic programme and the issues adolescents face in their daily life.

Several factors contribute to the outward manifestation of emotional pressures that involve distress. The youngster is influenced strongly by the pressur es in the school and situations outside the home. Consequently, he gives vent to his emotional outbursts in his own home in response to provocations that he faces at school or elsewhere with outward calmness. Even in the home environment some adolescents are subjected to fears and resentments that are not obviously expressed and which their parents do not comprehend.

As the child grows, he tends to shift from "whole hearted overt and direct", to more graded 'covert and indirect' forms of expression. The farther this process advances, the more difficult it becomes for parents and teachers to perceive his emotions This problem is complicated further by the fact that children frequently hide their feelings in order to protect their self esteem.

Such concealment may benefit society at large. If every one went about "wearing his emotions on his sleeve" it would be unbearable. On the other hand, such concealment may bring stress. In school, and home, the adolescent may struggle to be a 'Spartan' in the face of troubles that might be relieved if he felt free to confide in, or discuss with others. He may continue to nurse resentments that would have been resolved had he approached others. He may harbour desires, temptations and feelings of guilt that would be easier to bear if he knew that all human beings are afflicted by such conflicts.

Concealing emotions may become a burden under some conditions. The adolescent goes on simply adding to his troubles, if impulses, he is unable to express, crop up all the time. For example, he may mask an intense feeling of anger that occurs when some one hurts his pride sharply, and still harbour this anger and explode on another occasion for a trivial affront. "Furthermore, the habit of concealment has serious consequences, if a person does not stop at masking his emotions, but becomes anxious to look beneath the mask. The burden of fear becomes heavier if he is not only frightened by things that ordinarily scare people, but also by the thought that some may regard him as frightened and cowardly"(6).

Development tasks of adolescents

The development tasks of the adolescent gives rise to many problems of adjustment. His childhood years were peaceful and happy. Now he is experiencing the inner strains of growing up. There is a struggle within himself, between his childhood habits of dependence upon others for the fulfilment of his desires, and his recognition of the new forces and urges towards freedom from adult restraint and control. Out of this struggle, flow feelings of restlessness, disappointment, resentment and discouragement.

While the child receives much of the social education in the home, many values accrue from association with organized groups of his own age in the high school. By providing opportunities for adolescent pupils to participate in self initiated projects and social activities, under her sympathetic and tactful guidance, the Home Science teacher facilitates their making the necessary adjustments. The community-school relations will be of great assistance in this effort. Every pupil should be able to find in the school some form of social activity that will meet his particular interests and challenge him towards successful participation.

The successful Home Science teacher attempts to help her pupils through the different aspects of her programme to accomplish the development tasks. She does so by acquiring a comprehensive knowledge of these tasks in the light of the maladjustments and emotional conflicts in adolescents due to external forces from the society, besides the normal physiological and sociological causes. Teachers should seek constantly to discover the needs, interests and problems of the pupils as basis for planning their curricula Through an understanding of the characteristics of adolescents, the Home Science teacher should find ways in which she can help them in their development and adjustments. For example, in the early adolescent period, children lack motor coordination and steadiness. Therefore they may have difficulty in manipulating a weighing balance, foot ruler or sewing machine. Drawing and stitching may be poor and slow. When such activity is taught during this stage, the teacher should emphasise that enjoyment and interest, rather than skill, are the main outcomes expected.

Havighurst(7) has identified the developmental tasks of adolescents as:

1. Achieving new and more mature relations of age-mates of both sexes,
2. Achieving masculine or feminine role as the case may be,
3. Accepting one's own physique and using the body effectively,
4. Achieving emotional independence of parents and other adults,
5. Achieving assurance of economic independence,
6. Preparing for an occupation,
7. Preparing for marriage and family life,
8. Developing intellectual skills and concepts necessary for civic competence,
9. Desiring and achieving responsible behaviour, and
10. Acquiring a set of values and an ethical system as a guide to behaviour.

Tyron and Lilienthal(8) have categorised the developmental tasks from birth to death. The 10 categories pertaining to adolescence are given in Table I.

Table I

DEVELOPMENTAL TASKS OF ADOLESCENTS

Category	*Early adolescence (Pubescence to puberty)*	*Late adolescence (Puberty to early maturity)*
(1)	(2)	(3)
I. Achieving an appropriate dependence-independence pattern.	Establishing one's independence [from adults in all areas of behaviour.	Establishing one's self as an independent individual in an adult manner.
II Achieving an appropriate giving-receiving pattern of affection.	Accepting one's self as a worth-while person really worthy of love.	Building a strong affectional bond with a (possible) marriage partner.
III. Relating to changing social groups	Behaving according to a shifting peer code.	Adopting an adult patterned set of social values by learning a new code.
IV. Developing a conscience.		Learning to verbalize contradictions in moral codes, as well as discrepancies between principle and practice and resolving these problems in a responsible manner.
V. Learning one's psycho-socio biological sex	1. Strong identification with one's own sex mates. 2. Learning one's role in hetero-sexual relationships	1. Exploring possibilities for a future mate. 2. Choosing an occupation. 3. Preparing to accept one's future role in manhood or womanhood as a responsible citizen of the larger community.
VI. Accepting and adjusting to a changing body.	Recognizing one's thoughts about one's self in the face of significant bodily changes and their implications.	Learning appropriate outlets for sexual drives.
VII Managing a changing body and learning new motor patterns.	Controlling and using a "new" body.	
VIII. Learning to understand and control the physical world		

(1)	(2)	(3)
IX. Developing an appropriate symbol system and conceptual abilities.	1 Using language to express and clarify more complex concepts. 2. Moving from the concrete to the abstract and applying general principles to the particular.	Achieving the level of reasoning of which one is capable.
X Relating one's self to the cosmos		Formulating a workable belief and value system

Conscious efforts are needed in the family to help boys and girls in the process of making adjustments to growth. Home Science is basically oriented towards helping adolescents in this task through activities such as economical use of available resources, caring for children, health, clothing, feeding, housing, and family relationships. The developmental characteristics of youth significant for such Home Science education are shown in Table II(9).

Table II

DEVELOPMENTAL CHARACTERISTICS OF ADOLESCENTS

Early adolescence	*Middle adolescence*	*Late adolescence*
(1)	(2)	(3)
More rapid development of motor functions in girls than in boys.	More stable physical growth.	Physical growth and development approach that of adults.
Girls mature earlier than boys.	Boy's growth equal to that of girls.	Sensitivity over increased size.
Unevenness of physical growth, leading to fears and peculiar worries.	Great craving for food; some ideas about foods.	Continuation of large appetites, but increased interest in diet and exercise.
Social relationships change from "the gang" to one or two "best friends".	Less consciousness better acceptance of body changes	Physical coordination and dexterity equal to or exceeding that of adults.
Sensitivity over characteristics not accepted by the group.	Embarrassment over skin disorders.	Disappearance of most differences in maturation between boys and girls.

(1)	(2)	(3)
Craving for food, leading to digestive disturbances from over eating	Tendency in girls to worry about certain physical conditions	Continued sensitivity over skin disorders.
Concern over skin disorders.	Improved body coordination and posture.	Maintaining attractive appearance, now an accepted routine
Short interest span.	Strong desire (in both sexes) to be attractive and to conform to group standards.	Increase in close friendrships.
More social interest on the part of girls than of boys.	Increased assumption of responsibility for maintaining good health habits, resentment over parental advice about health.	Greater asserting of independence from adult supervision.
Little interest in neatness and cleanliness	Greater interest in sports.	More attention given to ways of earning a living.
Strong desire for security, for friends whom they like and who like them, for approval from adults.	Growing preoccupation with the social value of attractiveness.	Eagerness to become self-sufficient and self-supporting.
Increased desire for strong bodies in order to excel in sports.	Resistance to parental control, growing assertion of independence.	Increased desire for status in the adult world, outside, and in family group.
Interest in independence, but not to the point of giving up the security and dependence.	Impatience—in girls with lack of skill in social situations—in boys with mechanical failure in material things.	Prestige seeking by both boys and girls.
Tendency to associate with members of the same sex, to form attachments for friends or older persons.	Occasional interest in the opposite sex.	Interest in being different, rather than being "just like" each other.
Giving importance for family status and security.	Increased desire to work at jobs that pay wages.	More discrimination in choosing friends.
Interest in doing things with hands.	More social maturity in girls than in boys; strong group feeling.	Greater interest in prospective home.
Strong desire to prove they are "growing up".	Satisfaction in individual accomplishments that receive recognition of the group.	Dreaming of future vocation; marriage and home.

Based on the developmental characteristics and needs of adolescents, the Home Science teacher should be sensitive to discover their needs and plan the Home Science programme to meet their needs.

Table III gives the needs of pupils and the signs which will help teachers recognize and meet them.

Table III

NEEDS OF PUPILS AND THEIR SIGNS

Needs	*Signs*	*Suggestions for meeting the needs*
(1)	(2)	(3)
I. Physiological needs		
(a) Food	Pupils will be less attentive in the class or inactive easily irritated; unable to concentrate on, and dislike assignments.	Maintain records of height, weight. Arrange medical inspection. Check food habits; Watch for signs of undernourishment. Form Red Cross units. Organize midday meal programmes.
(b) Clothing	Appearance shabby, clothes dirty, or otherwise not cared for.	Study the economic conditions of pupils. Provide uniforms. Help making garments Help launder, repair and renovate clothes in the class.
(c) Health	Pupils lose weight, do not manifest stamina in manual work, look pale; fall sick frequently, infected easily with epidemics.	Study health records medical reports and check-ups; Take pupils to health centres, follow up medical advice, at home and school. Teach them to check their health habits using a check list Promote preventive measures — immunisation— vaccination. Help pupils maintain cleanliness in personal life and in the home.
(d) Sleep and exercise	Pupils feel drowsy, inattentive and tired; yawn frequently, reluctant to take part in games	Advise mothers help pupils plan their daily time table and keep records in order to allow enough time for sleep, rest and recreation. Help

(1)	(2)	(3)
		prevent mosquitos. Find out whether pupils have enough time to sleep at home—what time they go to bed. Whether disturbed by hair louse, noise. Advise pupils to join the N. C. C. or A. C. C. Maintain physical training reports.
II. Psychological needs		
(a) Recognition.	Whether pupil is isolated, reserved, in drawn or outgoing, cheerful or sad. The type of response of parents to pupils progress reports. Attitudes of peers.	Give pupils opportunities to mix with all and work in teams to take part in debates, competitions. Approve and appreciate pupil's progress in studies. Held parent-teacher conferences to stress the need for appreciation. Recognize merit and improvement. Show pupils that they can do more than what they think they can.
(b) Affection, security, self-confidence and satisfaction.	Pupil is always discontented.	Observe the pattern of friendship among pupils, social behaviour, conversations, pupil's discussions about family, willingness to take part in activities, attitudes towards particular boy or girl behaviour within a group. Assign responsibilities which will bring out affection. Encourage pupils to take part in cultural activities and social services Give helpful suggestions when pupils seek advice when perplexed. Win the co-operation of the parents.
(c) Leadership, tolerance and co-operation	Pupil's reactions when responsibility is given are negative. Co-operation with others is small; Reactions and attitudes to friends and class-mates are not positive. 'Friends' respond poorly. Ability and willingness to	Organise pupils' self-government in school. Help pupils help each other Introduce the Queue system for drinking water. Organise group projects such as gardening to develop self-reliance. Assign responsibilities, in

(1)	(2)	(3)
	carry out activity independently are poor.	turn to supervise activities.
III. Economic needs	Pupil's dress is poor. Response to appeals to contribute money for devices such as social services is poor. Willingness to pay for excursions is non-existent.	Introduce uniforms in school to avoid superiority and inferiority complexes. Arrange excursions to near-by places so that all pupils can pay. Organise PTA and suggest ways of improving the economic conditions of families Show how to supplement income through knitting, kitchen gardening, and poultry farming and other crafts Demonstrate low cost balanced diets. Teach efficient use of available space, equipment and other resources.
IV. Social needs	Pupils' participation in social activities and behaviour; if aloof and alone; if mingling with class-mates and enjoying activities; if approaches teacher for solving problems; talks about neighbours	Help pupils join social service group, pupils club and participate in cultural activities Organise group work, visits to welfare. Encourage staying in hostel wherever possible.
V. Cultural and aesthetic needs	Pupils' expression of art in daily work and celebrations. Appearance; how books and other possessions are maintained, interest in arts and crafts Types of reading and hobbies; interests and abilities in music.	Award prizes for best accomplishments in aesthetic events. Have pupils take charge of decorations for school celebrations. Give opportunities to exhibit craft work and reading lists for vocations.
VI. Spiritual and ethical needs	Pupils' respect for honesty and other moral values; Behaviour in the class; respect for the teacher and elders; families' reputation for moral standards.	Organise daily assemblies and let pupils read quotations from all religions, moral, citizenship training. Talk about heroes and great personalities in literary and other meetings. Dramatise the lives of such personalities. Have children read biographies of great leaders. Arrange visits to temples, churches.

ASSIGNMENTS

1. *Observe a twelve year old boy or girl for a period of six months and record the changes that occur in the individual in the following aspects*
   - *(a) Appearance*
   - *(b) Attitude towards members of the family and peers.*
   - *(c) Sociability*
   - *(d) Interest in co-curricular activities.*
2. *Suggest activities for channalising the emotions of adolescents.*
3. *Compare and contrast the characteristics of an adolescent boy or girl in rural area with that of his/her urban counterpart.*
4. *Find out from a group of 20 adolescent boys and 20 adolescent girls, their aspirations in life.*

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CHAPTER VII

Pupils' Families and Communities

> *Experiences in a good home, in a good school community, in a social group of likeminded persons can become a life-long commitment for the service of the town, the state, the nation and even mankind.*
>
> —ZAKIR HUSSAIN

Needs of the pupils

Each pupil is a unique individual with his special characteristics and tastes. His physical and mental make up should be studied and respected in order to understand his needs The teacher can recognize the needs of pupils only through a knowledge of their interests, intellectual ability and level of maturity. The needs of pupils are many : physiological, psychological, economic, social, ethical and aesthetic.

The first five or six years of life are crucial, being foundation years. Even after starting school, the child continues to live with his parents. Their attitudes and behaviour mould his personality. Even though the educational functions of the family such as teaching specific skills and normative training have been largely taken over by formal educational institutions, the family still exerts a profound influence on the attitude of the pupil to the school.

While the school has become an additional socializing agency for the child, the family environment encourages the pupils towards good academic performance. The school shares with the family the responsibilities of socialization and influences other agencies in the community to provide the facilities necessary for the social development of pupils(1).

Several studies of school achievement suggest that achievement motivation is high when parents urge the child to obtain high grades and reward him for his worthy achievements, mastery of skills and excellent marks (grades) Parental control can be positive and efficient if used for such motivation. Morrow and Wilson studied the family relations of bright over-achieving and under-achieving high school boys as they were perceived by the boys themselves. The groups studied were relatively homogenous in intelligence and socio-economic status. The authors found that over-achievers were more likely to describe their families as sharing recreation, ideas and confidences, approving, trusting, affectionate and encouraging with regard to achievement, and relatively non-restrictive and non-severe. Thus methods of child rearing or child training are associated with the types of achievement in the school.

Children from middle and upper classes, brought up in an environment where communication between the mother and the child is through verbalisation and conceptualisation is optimum, learn words and sentences early and express themselves adequately. In contrast, children from the lower working class families are unable to command similar language facility. Observing the family and community will thus help the teacher to understand the differences in achievement of pupils, in the light of their home background and extent of socialisation. The teacher needs to know how the pupil acquires not only the values and skills of his group, but even more significantly, the ability and the motivation to learn new skills and values in a society where education is the major key to social maturity, mobility and success. In particular she needs to perceive the relationship between personality and social status.

Successful teaching of Home Science requires, the teacher relating her lessons to the needs of the pupils, their homes and communities, and the values, ideals and aspirations held sacred by them. She must understand the patterns of living and the socio-economic-cultural characteristics of the families, their problems with regard to finances, education, health care and other services and public utilities. Knowledge of the housing design and constraints, types of kitchen and equipment, child rearing practices, trends in clothing and food habits is essential to relate teaching to home situations.

In order to comprehend the family background of her pupils, the teacher should use extension and sociological approaches. The family is the earliest and the most important venue in which socialization occurs. Yet it would be wrong to assume that the family is the only factor in explaining the inter-class and intra-class differences in educational achievements. The school itself is a socialising agency of considerable importance in which the teachers and the peer groups play their part — a part which may reinforce or be in conflict with the influence of the family(2).

The following pages give suggestions and schedules for the use of the Home Science teacher to gain an insight into the homes and communities from which her pupils come.

. Understandings required of the teacher

1. *Understandings required about the pupils*

Results of physical examination appearance, height, weight, eyesight, skin, teeth, and hair, presence of tonsilitis and other symptoms.
Personality and behaviour: pleasing or irritable, reserved or pushing, aggressive or helpful and responsible.
Performance in the school: intellectual abilities.
Relationships with classmates and others. types of friends and attitudes towards friends.
Interests
Hobbies
Skills
Practical abilities
Types of recreation enjoyed.

2. *Understandings required about the homes and the families of pupils*

Type of family
Size of the family
Community, religion
Occupation of parents
Whether both parents are working
Status of the family in the community
Financial position
Savings invested for the future
Home surroundings and locality
Pupil's place in the family
Health status of the members of the family
Attitudes of the family towards education of children
Cooperation extended to pupil by parents and other relatives
Types of relationships within the family
Food habits — vegetarian or non-vegetarian
Recreational facilities in the home
Attitudes of the families towards equality for boys and girls and their education.

3 *Understandings required about the community*

Locality of the community — urban or rural
Dominance of castes, religions, customs, traditions
Economic status, trade, business and professions

Health facilities available — hospitals, clinics, nursing homes and free medical services.
Public utilities available — water supply, electricity, transportation, Post Office, banks.
Shopping facilities, co-operative stores, shandy
Recreational facilities — play grounds, parks, radio listening, reading room.
Educational facilities — Pre-schools, schools, Polytechnics, colleges, universities.
Public services — Police, fire services, first aid, Community Development Block, Social Welfare Board and National Extension Services.
Clubs and Samajs.
Attitudes towards role of adolescents.

Teachers can acquire these understandings from the data collected through by their visits, surveys, talks, informal observations and many other ways. Based on the facts thus obtained, they can correlate their teaching effectively with the home conditions of the pupils. For instance, if none of the pupils has a pressure cooker, baking oven or refrigerator in her home, the emphasis, while teaching household appliances in that class, should be more on the kerosene stove or similar appliances which they possess, However pupils' interest may be stimulated by a demonstration on using some of the modern appliances such as the pressure cooker. If the fuel used in the majority of the homes is firewood, the teacher needs to pay greater attention to achieving smokeless kitchens with firewood as fuel.

Understanding other aspects such as food combinations, methods of cooking, utensils used, methods of serving meals, types of clothing articles purchased, income, and responsibilities of the boys and girls in the home will unfold endless opportunities to correlate teaching with home conditions. A creative teacher will find this knowledge absolutely essential for realistic teaching and for effecting permanent learning.

B. Schedule for studying the community

1. Name of place : District :
Panchayat/Union/Municipality/Corporation
2. Population : Men Women Children below 6 yrs. Level of literacy
3. Medical and health services available :
Hospitals Doctors
Clinics including Family Planning Clinics Nurses

Health Centres (including Maternity and Child Health and Primary Health Centre)
Nursing Homes
Dentists
Others

4. Peoples' organizations:

Mothers' clubs
Women's clubs
Bharat Scouts and Guides
Red Cross
Social Work Groups
Women's Voluntary Service
Youth Clubs
Rural radio forum
Professional organizations
Literary organisation
Parent Teachers' Association
Farmers' clubs
Others

5. Religious activities

6. Educational facilities.

Nursery school } Balwadi
Kindergarten }
Basic (primary) school
Night school
High school
Arts and science college
Professional college/institute
Library
Community radio
Government publicity and information office
Plan Information Centre
Others

7. Facilities for recreation:

Cinema
Park
Museum
Exhibition
Swimming pool
Stadium

Club
Others

8. Transportation facilities:
    - Airways
    - Bus
    - Train
    - Taxi/cars
    - Auto-rickshaw
    - Scooter
    - Cycle rickshaw
    - Jutka (Tonga)
    - Bicycle
    - Bullock cart
    - Others
9. Public utilities:
    - Housing
    - Water supply
    - Gas supply
    - Electricity supply
    - Garbage disposal
    - Sewage disposals
    - Latrines
    - Underground or other type of drainage
    - Others
10. Public services:
    - Banks
    - Post Office
    - Registrar's office
    - Telegraph office
    - Revenue office
    - Block Development Office
    - Police Station
    - Fire Brigade
    - Public Trunk Call office
    - Others
11. Shopping facilities:
    - Bazaars
    - Co-operative stores
    - Fairs
    - Small stores
    - Weekly markets
    - Super market
    - Large stores
    - Fair price shops
    - Shandies
    - Others
12. Sources of income:
    - Average income
    - Farming
    - Business
    - Professions such as teaching, law, etc.
    - Work in mills and other industries
    - Others

C. Schedule for studying the pupils

A detailed and systematic study of the individual high school pupil will give much information for understanding the pupils, their background, attitudes and household practices. Given below is a survey form for the study of a high school pupil.

1. My name
My address
My school
My class

Working hours in my school
Distance from my home to the school
Facilities for games in my school :
- Badminton
- Basket ball
- Ring tennis
- Table tennis
- Others

I go to school by :
- Walking
- Bullock cart
- Tonga (Jutka)
- Bicycling
- Train
- Scooter
- Car
- Public Bus
- School bus
- Other vehicles—specify

I go home for lunch
The school provides me lunch
I take lunch to school with me
I do not eat anything during lunch time

2. My class subjects

The subjects in which practicals are arranged
The subjects I like best :
The lessons I do not like to learn are :

3. My home and my family :

Name of my father/guardian
Address of my father/guardian
Occupation of my father/guardian monthly income
Name of my mother
My mother works as
The total family income per month
I have......brothers and......sisters
Besides these......adults......children live with us
I am the younegest/eldest/in-between/in my family
The relatives living with us in our home are :
(a)
(b)
(c)

4. About myself .

(a) *Physical*

My age (years)
My weight (kg)
My height (cm)
My head circumference (cm)
My skinfold measurement

Games I play :

I play for . .. hours per day
I sleep for ....hours per day
I have the following health problems
(a)
(b)
(c)

My health status is :

(b) *My food habits*

I am a vegetarian/non-vegetarian
The main meals I take during the day are :

	Meal	*Timing*
(i)	at	O' clock
(ii)	at	O' clock
(iii)	at	O' clock
(iv)	at	O' clock

I eat between meals . yes/no
If yes, foods and timings

The foods I like are :
(i)
(ii)
(iii)

When given foods which I dislike
(i) I do not touch them
(ii) I throw them away
(iii) I forcefully eat them
(iv) I try to like them.

(c) *My financial position*

I receive scholarship : yes/no
If yes, Rs ... . /month

I earn money .... yes/no
If yes, Rs . ...../month

(d) Interests outside the school

I have . ..friends yes/no
I choose my own friends yes/no
I go to movies . .... times a week/month
I am interested in the following types of music :
(i)
(ii)
(iii)
I belong to the following clubs
(i)
(ii)
(iii)
My hobbies are : (i)
(ii)
(iii)
I spend ...... hours per day/per week at my hobby
On short holidays, I visit my relatives/visit other places/read books/others
On long vacations, I go to :
(i)
(ii)
(iii)
For worship, I attend bhajans, temple/church/others

(e) My plans for the future

After finishing high school my plans are to :
go to college
marry
work
stay home
others
no plans

I want to go to college, because :

I want to work, because :

The type of work I want to do :

(f) Sharing responsibilities in the home

I have responsibilities in my home for .
cooking
cleaning utensils

cleaning home
grinding masala
washing clothes
caring for children
entertaining guests
shopping
others

I like helping in the home yes/no
The activity I like best in the home is .... .
I try to improve the appearance of my home and its practices, because I have studied Home Science : yes/no
I select my clothes yes/no
I clean my own room yes/no
I get pocket money of Rs .....per month .....per week......
I spend my pocket money in

(g) *My relations with my parents*

I discuss my problems with :

My father	My mother
Both	Others

My parents discuss family matters with me yes/no
The things I do together with my family are:

(i)
(ii)
(iii)

The list of questions is long. The answers will be checked over a long period of time, as the teacher observes, talks and works with pupils in classes, participates in their social activities and visits their homes.

D. A check list of housing facilities and home activities

In addition to the information gathered about the community and individual pupils, a thorough knowledge of the housing and home conditions is essential for modifying teaching, for providing experiences, which will simulate more nearly home conditions, to meet the needs and interests of pupils. Replies furnished by pupils by filling the check-list given below will show their housing conditions, the tasks which are entrusted to the pupils in their homes, how they are being done and which of them are being enjoyed.

1. *Housing facilities*
My house is rented , ..owned......single, double, multistoreyed apartment .. ..or convertional type .....large .....small......electrified.. ....

My house has... ..room(s)... ..a kitchen garden separate room for me...

My house has separate bedding for all the members... ..

The furniture in my house are:

... .

2. *Household appliances in my house*

	Yes	No
Smokeless chulah		
Kerosene stove		
Gas oven		
Gas stove		
Electric oven		
Lioo oven		
Baking oven		
Pressure cooker		
Steam cooker		
Ice box		
Refrigerator		
Food Mixer		
Grinding stone		
Food grinder		
Charcoal iron		
Electric Iron		
Sewing machine		
Others :		

3. *Fuels used in my house*

Fire wood ..... coal ...... charcoal
Kerosene ..... gas ...... electricity ......
Others :

4. *Servants in my house*

We have servants : Yes/No

If yes, we have servants for :

house work.................... . .. cooking...... ....
washing clothes ....sweeping the home ....
cleaning the latrines... . ...others

We have.....................servants in our house

5. *Food preparation activities in my house*

The typical meal patterns are :

Breakfast	*Tea*
Time . .. .O'clock	Time . ... O'clock
Items :	Items :
(a)	(a)
(b)	(b)
(c)	(c)
Others	Others

Lunch	*Dinner*
Time.......... . . . O'clock	Time... . .. .. . O'clock
Items :	Items :
(a)	(a)
(b)	(b)
(c)	(c)
Others	Others

Meals are served in my home :

On the tables... ..on the floor .. . on wooden planks . ...

We eat our meals :

together .... .separately . .. in the kitchen . . . in the dining room . . .in the verandah... . ... .

We eat with our fingers .. .. yes/no

The beverage for children in our home is :

milk... coffee . . .tea . .cocoa .. ovaltine .. ..fruits juice water......

The wheat preparations commonly used in my family are :

(a)
(b)
(c)
Others

The preparations made with dhals and grams are :

(a)
(b)
(c)
Others

The rice preparations commonly used in my family are :

(a)
(b)
(c)
Others

The vegetable preparations commonly used in our home are :

(a)
(b)
(c)

We use sweet preparations :

Daily in our diet..... weekly. ....only on occasions.. ..

The sweet preparations used are :

(a)
(b)
(c)

We use fruits :

daily..... weekly... ..occasionally . ..never .....

We use fruits as :

Whole......salad......jelly......cooked......others....

The pickles prepared in our home are :

(a)
(b)
(c)

We use raw vegetables in our diet such as :

(a)
(b)
(c)

We use baked foods in our diet such as :

(a)
(b)
(c)

Baking is done in our home by :

I have planned, prepared and served the following food preparations in my home :

(a)
(b)
(c)

I have helped my family in entertaining guests during the following occasions:

(a)
(b)
(c)

6. *Clothing activities of my family*

Clothing purchases for my family are made:

every week... . every month . every three months
on festivals. once a year..... on other occasions

Types of clothing purchased are:

for everyday wear (cotton, silk) .. .
for special functions .....for girls . ...
for boys..... others .

The clothing purchases are made by:

my father . .. my mother. . ..both.. . .both and children
.... .others ...

The amount of money spent in my family for a year on clothing is Rs... .....per member.

Our clothes are washed by:

Ourselves .. servants in the home..... dhobi . ...others.

We wash our clothes in the following way:

(a)
(b)
(c)

I know sewing: by hand ... .by machine . . basic stitches ......
basic constructions. . .. ..mending . . .embroidery ... .
other fancy work.

I have made the following garments:

blouse .. .petticoats...... pyjama .....frocks ... aprons......
others

7 *Health activities in our home*

I wash my hair... times a week.
We have individual towels, combs, soaps in our home: yes/no
If no, ... of us share the towel... . comb ... soap.......
We have play ground in or near our home......
The type of latrine in our home is bore-hole. ... trench.......flush.. ...
septic tank.... others.

The water supply for our home comes from :

(a)

(b)

(c)

Drinking water in home is boiled .....not boiled... ..purified by. . . not treated at all......

We have houseflies in our home — yes/no

We have cockroaches in our home — yes/no

We have mosquitoes in our home — yes/no

We have ants in our home — yes/no

We have a sick room in the home. ....have a medicine chest in the home......

8. *Home management activities*

We clean our house daily .. weekly . .monthly. ....others.

We white wash/repaint our house every three months.... every six months......every year .... mention other periodicity.

We arrange flower vases in .... room.

We do floor decorations like rangoli .kolam .

We have pictures in the following rooms. ....

We clean our utensils in the following ways:

We clean our utensils with .....

We dispose garbage from our home by ...

We have an account book for family accounts... .

We have a plan for daily work in the home......

9. *Child care activities in the home*

Children in my home are encouraged to :

dress themselves .. . feed themselves......follow regular time for meals ....sleep regularly... ..others.....

I have the responsibilities for looking after my younger brother...... younger sister others . ..

I do the following activities for children:

feeding .....dressing .. bathing .... arranging......play...... telling stories . .. singing..... others......

When the teacher understands the values and ideals held sacred by the families, their ways of living, the kind of equipment used and the pride the members take in their homes, she has a basis for relating her instruction to actual situations.

ASSIGNMENTS

1 *Study the conditions and practices, followed in the house of three pupils with regard to:*
   - *(a) Meal pattern*
   - *(b) Income expenditure pattern*
   - *(c) Home decoration*
   - *(d) Furniture*

2. *Show how you will relate the teaching of Home Science to the conditions revealed by the findings of assignment 1.*

3. *Critically examine how far pupils relate their knowledge of Home Science to their household practices.*

4. *What are the barriers pupils face in their attempts to promote the desirable changes in home practices with regard to food preparation and bringing up children*

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CHAPTER VIII

The Learning Process

The processes of teaching and learning stimulate each other

—CONFUCIUS

HOW DOES LEARNING take place ? What are the conditions which favour learning ? Learning is change or modification that occurs in performance as a result of training and experience, (McConnell)(1). Learning in school means, modifying or changing the behaviour of the pupils in terms of achieving the goals It is the process by which the pupil profits from past experiences. According to skinner(2) learning, "is a process of progressive behaviour adaptation". When learning takes place, new technique or ability, based on past experience, develops.

Learning leads to establishing relationships between the stimuli and the responses, through mental connections. Learning is thus connecting(3). Man is the greatest of all learners, because he forms many connections. Good teaching based on the psychology of learning and adequate preparation, leads to numerous connections born out of effective thinking, planning and execution. Understanding the factors involved in the learning process is therefore important for the teacher. Pupils respond to knowledge in different ways. When the teacher recognizes the factors which favour learning, she will make the teaching-learning process efficient and economical, by discarding the wrong steps and establishing the correct connections.

Principles of learning

Hullfish and Smith(4) have expounded five principles of learning. According to these authors, learning is :

1. Motivated when the learner has some stake in the activity.
2. Geared to the learner's level and compatible with his physical and intellectual ability.
3. Patterned when the learner can see meaningful relationships between the activity and the goal.
4. Evaluated when the learner has some way of knowing the progress he is making, and

5. Integrated with personal and social development, when the learner experiences satisfactory growth and adjustments.

Motivation in learning

Motivation is the most powerful director of learning. In learning and living motivation is indispensable for success. Achievement in learning depends largely on how much the pupil really wants to study and succeed and how far he is willing to put forth the cost in terms of human effort and energy to reach the goal.

Teachers use many ways to motivate children to learn. Compulsion, coercion, tempting with reward or praise and rousing their interest and eagerness to acquire knowledge are some of the methods used. Wherever all-round development of character and personality through self-activities, self-direction and self-expression are emphasised coercion and tempting will have no place. Pupils learn and develop best when they exert their utmost, when they energize their responses and behaviour and when they have dynamic relationship with their environment.

Teachers should learn the art of stimulating and sustaining pupils' interest in learning. A high degree of motivation helps in rousing pupils into action and ensures their active participation in learning activities. Mere repetition does not lead to learning. The repetition must be purposive and active; it must enlist the involvement of the pupil. The teacher needs to direct the learning process through positive motivation.

Linking teaching and learning Richardson has formulated the following principles.

Learning:

1. results from the active involvement of the learner,
2. begins with the learner's present achievement,
3. increases its effectiveness with motivation,
4. occurs through various channels,
5. bases meanings of words and other symbols on experience.
6. takes place in the total organism in response to the total situation, and
7. varies with individual differences in needs and abilities.

In Thorndike's(5) view, the laws which operate in the learning process are those of readiness, effect and exercise including frequency and recency. If the pupil has been prepared to learn through meaningful suggestions, he is ready to learn. The *law of readiness* then operates. If an effort brings success, reward or satisfaction, it is likely to be repeated If the size of the incentive or reward increases, the efficiency of learning may also increase provided the motivation continues. This illustrates the *law of effect.* The speed of performance depends on the satisfaction-value of the reward. 'Adaptation', 'adjustment', 'regulative change' and similar terms describe successful learning, indicating effect. Repeated effort gathers strength making repetition easier. This is the *law of frequency.* The act that has been performed recently has an advantage of being easy to repeat This is the law of *recency.* The laws of frequency and recency together constitute the *law of exercise.* However, as learning ability depends upon the stages of growth reached by the nervous and muscular systems, mere exercise or drill alone cannot effect learning.

Maturation and learning

Maturity has an important bearing on the learning process, particularly the maturity reached by the central nervous system and the muscular system As the organism matures, the innate potentialities unfold themselves In the development and functioning of brain, adequate nutrition during pregnancy and early childhood plays a dominant role. The degree of maturation necessary for a particular training to be effective is usually called 'learning readiness'

Thyne(6) points out four features of learning. (1) In each learning situation the learner learns to do something. This is the feature of behaviour; (2) Also previously he did something differently—hence there is *change of behaviour*; (3) The change of behaviour occurs in a *particular kind of situation* and (4) finally the old and new behaviour do not merely happen in the situation—each is occasioned by, or is a *response* to it. To learn is to adopt a new response to a situation.

There are four requirements for learning to take place; cue, force, prompt and reinforcement. *Cue* means, "In any instance of learning, there must be a series of situations showing the 'cue' of that instance. The teacher has to ensure a series of situations containing the cue. For example giving the page numbers in the references assigned to the pupil. Behaviour has two aspects: form and time of beginning. The learner must make response in terms of these two which constitute the situation, which must have '*force*' for learning to take place. The situation must make the learner react and elicit a response." In any instance of learning, the "cue" must have "force". 'Prompt' ensures that the response which the cue evokes has the specified form. In any instance of learning, a "prompt" must appear in one or more of the successive situations. In the school, the 'prompt' is usually in the form of instruction from the teacher. '*Reinforcement*' is that the specified form of "response" must be tied to the "cue". Learning will occur only when all these four functions are fulfilled

Conditioned learning

Conditioning is a form of learning in which the capacity to elicit a response is transferred from one stimulus to another. Conditioning means the establishment of a connection between a response and a stimulus which may not have a natural connection with it. Conditioning represents learning at a simple level. The principles of conditioning in learning were first established by Pavlov(7). He was conducting some experiments on dogs. Food is a natural stimulus to the salivary reflex. Pavlov demonstrated that the dog can be made to salivate to any stimulus associated with food, such as resonating a tuning fork. Since the secretion of saliva, which is a reflex action, resulted from the dog's response to the stimulus of the tuning fork, Pavlov designated such reflexes as "Conditioned reflexes".

Trial and error

Clayton(8) describes that as early as 1898, Thorndike published a theory of learning, based primarily upon animal experiments, such as the cat in a box. Later he expanded and developed this approach with applications to school situations. The unit of behaviour was a relationship, an association or connection between sense impressions and impulses to action. Faced with a situation, the learner will engage in a number of responses eventuating in the one that "solves" the problem. In repetitions of the situation, the incorrect responses will diminish and the correct response will become fixed. Learning, therefore, is a *trial and error process.* In the initial trials, there are a large number of errors, but as trials are repeated, there is no error and the result is success.

Insight learning

Kohler(9) put a chimpanzee in a cage and suspended a banana from the roof outside the cage. Two sticks were placed inside the cage. Neither of the two was long enough to reach the banana. After some unsuccessful attempts, the monkey incidentally found that one stick fitted into the hole of the other, but not properly. This gave the animal a bright idea. It joined the two sticks firmly together and got the banana. This was not an exploratory type of learning involving conditioning or trial and error, but a sudden flash, leading to *insight.* "Insight learning" is common among human beings.

Learning by imitation

Learning by imitation, happens by observing others doing things which one finds difficult to do himself and imitating them. Imitation helps to curtail errors, supplying cues for the learner. Speaking, writing, playing and numerous other skills are learned by observing others and repeating what they do. The pupil imitates the person he admires, one whom he would like to resemble. He identifies himself with the model in the sense that he wants to be like him. According to Nunn(10), "Imitation is but the first stage in the creation of individuality, and the richer the scope for imitation, the richer the developed individuality will be". Imitation is never a complete reproduction There is always variation indicating choice, preference for details and creativity.

Remembering and forgetting

There are several factors and practices which influence remembering and forgetting. Remembering is an active process. Remembering is important for the pupil because by remembering what he has learnt, he can recall and learn more. Studying a material at a stretch is known as *massed learning* When the material is learnt with intervals of rest, the method is called *distributed learning* or *spaced learning*. It has now been established that distributed learning is better than massed learning since unspread learning leads to confusion.

Learning should proceed from the *simple to the complex*, from *part to whole*. Learning a lesson as one whole unit is known as '*whole learning*'. Dividing the lesson and learning the smaller units is termed *part learning*. Whole learning is more advantageous to the pupil, since he can comprehend the whole. However, if a passage is too long, dividing it into meaningful subgroups will facilitate learning

The more often a learned material is repeated, the better is the retention. The pupil must be encouraged either to recite or review often, the lessons learnt.

The meaningfulness of a lesson to be learned is a most important feature affecting the rate of learning and amount of retention. Guilford(11) demonstrated that the more meaningful the material, the greater is its retention. Retention over various intervals of time is greater for substance learning than for rote learning. Factual information is forgotten faster than the ability to explain, interpret and apply general principles Therefore, Guilford has stressed the use of concrete rather than abstract materials and direct experience rather than second or third hand experience, particularly with young children.

All lessons should be made as meaningful as possible. It is purposeless to ask children to spell words which have no meaning for them. Scientific facts are rapidly forgotten, unless reinforced by relevant experience. Dates and names are valueless as isolated facts. They must be incorporated into units which have significance for pupils. Meaningful organization of material can be developed by attention to similarities and differences and by emphasis of the who, what, when, where and why of relationships.

Curves of forgetting generally show greater forgetting of verbal lessons than of motor skills Ebbinghaus's(12) pioneer work on learning and forgetting with the nonsense syllables which he invented in order to have learning tasks free of previous experience, showed a rapid initial drop followed by a gradual slide to nearly complete forgetting. The curve of forgetting varies considerably depending upon the extent to which school work has meaning, relatedness and organisation. There are situations when overlearning or occasional recall occur.

Transfer of training

Mastery of one skill may facilitate the learning of another skill. This is known as *transfer of training* (*learning*). Thorndike's experiments have proved that transfer of learning is not a universal occurrence

The distinction between retention and transfer rests upon the similarity or difference between the test situation and the learning situation. When the situation in which learning is being tested replicates the situation in which it was learned, retention can be measured, but when the situation differs, transfer of training is being measured.

The following factors appear to influence learning and transfer :

1. The perceptual clarity of the task, in points of relevant cues and appropriate responses.
2. The meaningfulness of the material and the understanding obtained.
3. The context in which the skill or knowledge is acquired.
4. Conditions contributing to, or reducing the interference between tasks such as similarity of stimuli or responses, and degree of overlearning.

Ultimately, each aspect of the school curriculum must be seen as part of the total curriculum, not only the formally described set of facts, skills, concepts and activities which comprise, the curriculum and its 'examination' system, but also in relation to the provision for individual differences, motivations, interests, attitudes, achievements and development.

When learning is optimum

Lacey's guidelines based on the principles of learning, emphasise that pupils learn: when

1. Teaching is within the context of their previous experience.

2. An emotionally and intellectually stimulating environment is present.
3. They feel secure with the learning situation and have respect for the teacher.
4. Multiple, concrete and first hand experiences are available as bases for concept formation.
5. They see whole situation as well as the various parts in relation to the whole.
6. They are engaged in activities calling for critical thinking and problem-solving.
7. They share actively in selecting problems and goals which have meaning for them.
8. Learning experiences are planned in a meaningful, sequential pattern, in which every learning activity has a definite objective.
9. There is provision for differences in meeting the individual abilities, interests and needs.
10. Meaningful practice reinforces sensory experiences
11. The teacher plans as carefully for attitudes and appreciations as for knowledge and skills.
12. Learning gained in the classroom leads to purposeful action related to it, and transfers readily to out-of-school situations, and
13. They participate in the evaluation of their learning experiences and receive emotional and intellectual satisfaction and a sense of achievement

Since learning cannot be separated from teaching, good guidance and effective procedures are required of the Home Science teacher. She needs to apply knowledge of the principles of both teaching and learning, in planning the educational activities.

ASSIGNMENTS

1. *Describe the ways in which you will motivate twelve year old pupils to learn and observe clean habits.*
2 *"Learning by doing leads to lasting education". Illustrate this statement, with two examples in Home Science.*
3. *The relevance of a lesson is important for effective learning. Explain how you would present a lesson on clothing for a ten year old boy in a meaningful manner.*
4. *Observe and list the impediments to learning, encountered by pupils in your community.*
5. *How will you help those pupils to overcome the impediments ?*

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CHAPTER IX

Understanding the Curriculum

> *A curriculum should deal with all the phases of the individual's life. It should train his intellect, teach him to control his actions and purify his desires. It should awaken his creative faculties, satisfy his spiritual aspirations and help him in his ascent towards the spirit.*
>
> —MANU SMRITI

THE TERM 'CURRICULUM' originates from the Latin word, "currere" which means "to run". It now connotes courses 'run' by the school for reaching its goals. Historically, 'curriculum' has come to mean classified selections of accumulated knowledge of academic subjects or disciplines.

If education is for life and through life, as the Secondary Education Commission(1) and the National Committee on Women's Education(2) have pointed out, curriculum is much more than the boundaries set by the academic subjects which are taught traditionally. Curriculum means all that goes into the lives of the pupils through the school, home and society. It is the totality of influences and experiences, selected and unselected, conscious, sub-conscious and even unconscious, and planned and unplanned, which the pupil receives through the manifold activities of the school, in the class-room, library, laboratory, workshop and playgrounds and in the numerous informal contacts between teachers and pupils.

Kilpatrick(3) describes curriculum as 'the school environment in motion'. The Encyclopaedia of Educational Research(4) defines curriculum, as programmatic activities intended to extend the school's responsibility which at present is limited to its so called formal syllabus or courses of study, in such a way as to embrace the individual, social and psychological development of its pupils.

Curriculum is knowledge arranged systematically for progressive acquisition. It is a sequence of learning experiences, class study, health and recreational services and guidance for educating pupils and helping them develop their interests and abilities towards effective participation in the life of the community.

A well conceived and well designed curriculum has a strategic role to play in achieving the objectives of the school. It aims at developing the social, intellectual and moral attitudes which distinguish an educated person from others Curriculum is thus not confined to certain subjects taught by the teacher and learnt by the pupils during the years in a school. It is the sum total of all the means employed in the school to develop the personality of the pupils.

The secondary school curriculum should aim at the development in pupils, of character, a sense of values, responsibility urge for Social Service and spirituality, preparation for a useful vocation and worthy citizenship. Such a curriculum must be related to the lives of the pupils in their homes, social environment, their parents and the work they would do after leaving school. In so relating the curriculum to the present and future needs of the pupils, special attention should be given to(5) : (a) the existing deficiency in the home environment — urban, rural and semi urban families — (b) the possibility of exploiting the educational potentiality of opportunities in the homes for work experiences rather than weaning pupils away from their families and (c) equipping boys and girls to the dire necessity of sharing the economic responsibilities of the family in our poverty-ridden society.

The ultimate measure of the effectiveness of a school is not the amount of skills and knowledge acquired by the pupils or the level of proficiency attained, but the amount of knowledge retained and used by them. Seen from this perspective, organisation and development of the school curriculum need to be consistent with the principles of learning.

However, as the Education Commission(6) has observed, the school curriculum in India is very narrowly conceived and largely out of date. " Education is a three-fold process of imparting knowledge, developing skills and inculcating proper interests, attitudes and values. Our schools are mostly concerned with the first part of the process — the imparting of knowledge — placing a premium on bookish knowledge and dominated by examinations, external and internal ". Another aspect lacking in the school curriculum(7) is that there is not enough correlation between the various subjects. There is a tendency to compartmentalize each subject and to treat it as an entity by itself Furthermore, as the development of useful skills and the inculcation of the right kind of interests, attitudes and values are not given sufficient emphasis, the curriculum is out of tune with modern life. This, as the Perspective Plan for Tamilnadu State(8) expresses, is one of the causes for stagnation and repetition at all levels of education. There is an ' in-built hiatus' between the rate of external change and the rate at which school and university curricula are being adapted in response

A good curriculum should have the following objectives. It should:

1, Create right attitudes and values in pupils,

2. Impart useful knowledge,
3. Stimulate applications of the knowledge to life situations;
4. Develop good personal habits;
5. Inculcate a sense of social awareness and service to society; and
6. Prepare pupils for their future role in life.

Characteristics of a dynamic curriculum

A dynamic curriculum is :

1. Based on experiences in all aspects of living, characterised by realism, novelty, challenge, stimulation and creativity.
2. Intellectual in structure and conceptual in themes.
3. Adequate in providing scope for observation, formulating problems, experimentation, independent work, drawing inferences and evaluation of results. Pupils will thus gain practice in the productive use of the available scientific methods at their level of development.
4. Conducive to cultivation of scientific skills, interests, attitudes and appreciations
5. Psychologically sound, taking into account the theories of learning and children's abilities.
6. Capable of helping pupils to bring about intelligent and effective adjustments with the environment.
7. Helpful to pupils in developing the attitudes and skills required for maintaining democracy.
8. Imaginative, forward looking and never static It moves taking note of the changes in the environment in which the pupils live.

A sound curriculum does not exist in isolation. It comes about as a result of the interaction of many variables : pupils and teachers; instruction and examination (evaluation); and home and community. Catering to individual differences in abilities and needs, it helps pupils to make maximum use of the resources and leisure. It has built-in mechanisms for continuous and critical evaluation of learnings.

The Education Commission(9) recommended that the school curriculum should take note of the quality of teachers, facilities available in the school and the needs of the pupils with reference to their socio-economic background. Echoing this recommendation, the Tamil Nadu State Planning Commission(10) calls for the reformation of the curricula, teaching methods and learning techniques so that they become functional in terms of varying learning abilities and technologies in the context of urban, rural, economic, social and cultural realities.

The teacher is the pivot in implementing the curriculum, No educational effort can succeed unless the teacher is fully involved in it. The factors which further vitalise the curriculum are :

1. The interpretation of the objectives and patterning the courses to fulfil the objectives.
2. The duration of the courses.
3. Availability of resources such as library, equipment, transport facilities and teaching aids.
4. Interests of the pupils, their needs and abilities.
5. Quality of class-room instruction in the particular subject and its correlations with other school subjects.
6. Activities such as school clubs, athletics and pupil government
7. Guidance and counselling.
8. Interests of the community and the services it offers
9. Utility — vocational bias.
10. Variety and flexibility.
11. Policy of state government; and
12. Human relationships between headmaster and teachers; teacher and pupils, headmaster and pupils; school and community and pupils and their families.

Since the curriculum is an attempt to relate logically and psychologically, subject matter and individual experiences, to attain the desired objectives of education, it could be *subject-centred* or *experience-centred* The subject-centred curriculum comprises three aspects: subject matter, correlated subjects and broad fields In the *subject-matter-curriculum*, the emphasis is on the facts, skills and knowledge The subjects are presented as separate tasks during the class periods at pre-determined rates following rigid schedules in which a specific number of periods per day or week is allotted to a particular subject or skill such as reading. The '*correlated-subjects*' curriculum attempts to relate all the school subjects to each other. For example, Home Science is correlated with general science, health education, geography, food production, and economics. The *broad-fields-curriculum* is one in which the languages, arts and sciences are considered as a whole and the separate phases of communication such as listening, speaking, reading and writing are treated as parts of the whole.

The *experience-centred* curriculum is a series of developmental activities. It places emphasis on the learner, his interests, abilities, personal, social and intellectual growth and interactions. How to use the physical and social environment of the school to provide experiences appropriate to the developmental level is its chief concern.

The difference between subject-centred and experience (child) centred curricula lies in the subjects taught on the one hand and on the experiences gained on the other. In the former, knowledge and procedures are pre-established, and the task of the child is to make his response congruent with the established system. In the latter, the emphasis is on exploring, analyzing and problem solving. The pupil finds himself exposed to a range of materials and activities suitable to his interests and developmental levels. He could start at any point and proceed at his own pace, assisted and encouraged by the teacher.

The *core-curriculum* identifies central and peripheral learnings in any type of curriculum described. It is commonly associated with the '*broad-field and developmental activity*' curricula. An analysis of the general types of curricula in the context of the conditions which promote transfer of training would indicate that, however, well an individual subject may be taught, the total 'school day' or 'school week' needs to be judged in terms of the abilities of children to discriminate between right and wrong cues and responses and to overcome interferences due to similarity of teaching procedures If the structural relationships are such as to suit the individual differences of the children, if there is enough time for optimum practice and if there are sufficient opportunities for evolving and applying generalisations, the curriculum is sound

In a large scale study, Thorndike *et al*(11) showed that little transfer occurred in terms of problem-solving skills or reasoning ability in a high school programme which taught Algebra, Geometry, Chemistry, Latin, English and foreign languages as exclusive subjects without application. This situation can be improved if the emphasis in instruction is shifted from sheer acquisition of knowledge to its application through transfer. In order to make that shift, the curriculum and instruction must provide pupils(12):

1 Practice in a variety of contexts and with a variety of materials.
2 Understanding and formulation of the features to be transferred.
3. Insight to develop meaningful generalizations, and
4. Opportunity to apply the generalizations.

The unit approach in curriculum implementation

Integrating the philosophy of education, theory of learning, subject matter and methods of instruction into coherent and comprehensive *Units* is a pre-requisite for teaching. The term '*Unit*' signifies basically a series of experiences in which pupils use resources from several areas to study over a period of time, one particular unit as a whole and achieve the goals of learning.

The principle underlying any method or approach, whether lecture, demonstration, project or problem-solving is to organize the curriculum into meaningful areas of activity This idea is embodied in Morrison's Unit plan development. Morrison(13) defines a *Unit* as a comprehensive and significant aspect of the environment of an organized science, art or conduct, which being learned, results in adaptation in personality. Ruediger(14) defines a *Unit* as, "Any division of subject matter, large or small, that, when mastered, gives one an insight into an appreciation of, or a mastery over some aspect of life" Anderson(15) explains *Unit* as an organization of experiences and information around some problem or goal to aid the pupil in integrating his learning. A series of lessons form one *Unit.* Small units constitute big units. Several units form a course of study. Courses make the syllabus. The syllabus, in turn, can easily be broken up into integrated courses consisting of units with goals based on needs, interests and previous experiences and knowledge of pupils in each class. These units should be spread judiciously over the different terms and years.

Characteristics of the unit

The *Unit* is characterised by several features. It:

(1) has a central theme around which class work and activities revolve.

(2) implies the use of more than one method of teaching.

(3) provides different kinds of learning experiences to the pupils through provision of balanced activity for individual pupil as well as large and small groups.

(4) requires careful preparation in advance by the teacher.

(5) employs many types of audio-visual aids and materials.

(6) has the following in its structure :

  (a) A *pre-test,* which seeks to ascertain what the pupil already knows about the Unit so that the teacher can guide him onward from the point of his knowledge and achievement.

  (b) An *'over view'* or introduction, which indicates the scope and purpose of the unit.

  (c) The content, message and procedures.

  (d) A final test to discover the amount of progress which the pupil has made. In units which run for longer than two weeks, a check-list is administered at about the middle of the unit to check pupil's progress.

  (e) A synthesis on the part of the individual pupil or at least a summary of some significant aspect of the unit.

Merits of the unit approach to curriculum

The Unit approach makes the curriculum and syllabus integrated, attractive, meaningful and understandable to boys and girls. Since it is difficult for teen-agers to comprehend the syllabus in its entirety, breaking it into smaller, wholesome units augments learning. The specific merits of the Unit approach are that it :

1. perceives the curriculum as a cohesive whole.
2. is built on modern concepts of learning.
3. takes note of the needs and development of pupils.
4. cuts across barriers and gaps in subject matter.
5. is life-centred.
6. caters to the normal interests and drives of pupils.
7. uses large blocks of time efficiently.
8 is geared to the level of maturity of the pupil.
9. emphasizes problem-solving, and
10 is planned co-operatively by pupils and the teachers.

Units are of many types—study units, work units, experience units, activity units, Home Science units, science units, literature units and such. All these are inter-dependent in their goals.

Planning Units in Home Science

A Unit in Home Science is composed of a group of closely related activities and experiences organised around a special problem, a central theme or project, such as: "Food for the family", "Help in the home" and "Children's clothes."

A Unit in Home Science does not necessarily confine to the lessons within the given subject matter area. Pupils may study many subjects and use several activities, such as reading, writing, speaking, drawing, painting and music as tools for investigating a particular unit or problem in Home Science. Consequently the length of time set for a Unit in Home Science or its duration is flexible It may extend for a week, six weeks and sometimes the whole year. Some units such as 'Proteins', 'Children's toys', 'Home decoration', 'Economy cooker' and 'Mending garments' may cover the given subject matter over a smaller period of time; while others such as, 'Changes in food habits', 'Growth pattern of an infant' or 'Durability of a fabric' may take longer periods.

Today's practice in secondary schools is to teach the different subjects in Home Science separately, following the order of sequence given in the prescribed syllabus because of formalities of "examinations" and "inspections". Practical work usually consists of isolated pieces of activities which are segregated from each other. In such a procedure, pupils are not able to see the art and science of *homemaking* as a whole Therefore, teachers should be given freedom to organise the subject matter given in the syllabus for the various areas of Home Science into integrated Units, The Units must be taught in a coherent manner, correlated with other areas of Home Science and other school subjects. For instance, *foods* cannot be taught without discussing *money management* or *physiology of digestion* *Money management* goes hand in hand with *meal preparation. Hygiene, textiles and household management* are involved in the *care of clothing. Psychological factors* play a significant role in *nutrition* or *child care. Food, clothing* and *housing*—the basic necessities of life, are all dependent on the purchasing power and conveniences available. All these are important to *health.* For optimum health, joy and satisfaction, sound *human relationships* are essential. Thus Home Science is an integrated field with all the different areas contributing towards success and happiness in the home and family. This recognition has led to the development of the 'Unit approach' in planning and organising class work in Home Science.

In planning the Units, the teacher should study the syllabus requirements prescribed by the State Boards of Education and the Management of the school, the syllabus prescribed for the particular class, its contents, periods allotted in the time table, the background of the pupils, their previous knowledge and experiences, other school subjects with which Home Science needs to be correlated effectively and the coordination and facilities available in the school. The interest, pupils and parents evince for Home Science should also be recognised. The goals (objectives) set co-operatively with the pupils for the various areas of Home Science, the outcomes expected, the experiences and activities to be selected for achieving the goals, methods of evaluating the outcomes and the freedom allowed for making changes in the curriculum in the light of evaluation, are the other vital considerations.

The Units should be organised with the pupil as the centre of attention. They must be related to the needs, interests, age levels of pupils, and the conditions of their homes and community. They must be taught meaningfully using a variety of teaching techniques and aids.

Organisation of the syllabus into Units promotes clarity in thinking, coherence in subject matter and definiteness of goals for both the teacher and the pupils. Being complete in themselves they facilitate learning, evaluation and planning for future improvements. At the conclusion of one Unit, the commencement of another new Unit arouses the curiosity and enthusiasm of the pupils and gives them a sense of achievement. Given below is an example for the organisation of a typical Unit in Home Science:

Subject in the curriculum	: Home Science
Section or course in the syllabus	: Foods and Nutrition

Larger Unit : Preparing a meal for the family (Breakfast or Lunch or Dinner).

Goal (objective) of the smaller unit : Developing some ability in the pupil to prepare and serve lunches to the family.

Laboratory lesson Number 1 : Preparation of *rice* plus *dhal.*

Laboratory lesson Number 2 : Preparation of rice plus dhal plus *salad.*

Laboratory lesson Number 3 : Preparation of rice plus dhal plus salad plus *curds.*

Laboratory lesson Number 4 : Preparation of rice plus dhal plus salad plus curds plus *chutney*

Laboratory lesson Number 5 : preparation of rice plus dhal plus salad plus curds plus chutney plus *vegetable.*

Laboratory lesson Number 6 : Preparation of rice plus dhal plus salad plus curds plus chutney plus vegetable plus *sweets.*

Laboratory lesson Number 7 . Preparation of rice plus dhal plus salad plus curds plus chutney plus vegetable plus sweets plus emphasis on serving attractively.

This series of laboratory lessons show the sequence in learning recipes in a single unit. In each lesson, the underlined recipes alone will be prepared in the context of the combinations given. Only in the last lesson, the entire class will prepare the meal, with each group taking responsibility for a particular preparation.

Each of the lessons in the above Unit accomplishes a definite objective, that is, preparing some recipe. Each contributes towards the larger objective, namely, developing ability to prepare and serve lunches to the family. Pupils can discuss throughout the Unit, the nutritive values of all the food-stuffs used, the methods of cooking employed, hygienic handling of food, attractive serving of a meal, working together, and learning skills and techniques in cooking. Each lesson will have something new to offer to the pupils and through each lesson, the teacher can emphasise some new ability. Each succeeding lesson is different from the preceding one and more interesting. Each is the natural outcome of the previous lesson and instrumental in inculcating abilities and sound attitudes.

All Units together will help towards the realisation of the goals for the course. Throughout the course the teacher will see that pupils participate in the planning, executing, evaluating and making suggestions for future improvement. This participation will help secure their co-operation, sustain interest and enthusiasm and promote social living. Through discussions and laboratory work, in this series of lessons, pupils learn all the subject matter content given in the prescribed syllabus. In addition they understand the implications of the principles of nutrition, their relation to health and development of body and mind as applied to their own lives.

Teachers will have to renew and modify the Units in the light of new needs and purposes. They will have to find suitable reference books, teaching aids and evaluative devices, all related to the objectives of Home Science education focussed on pupils' development.

ASSIGNMENTS

1. *List the factors which are the bases to set the objectives of a school curriculum.*
2. *Examine the current curriculum in the light of the objectives set.*
3. *Show the correlation of Home Science with Mathematics, Geography and Games in the school curriculum.*
4. *List the factors which give life and meaning to any curriculum and attract the attention of pupils.*

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CHAPTER X

Approaches to Teaching

> *Teaching is the art of drawing out something implicit within the learner*
>
> — SOCRATES

Teaching as communication

EDUCATION IS A dynamic process in which the learner undergoes many changes and becomes different in behaviour Consequently, his thinking and ways of tackling daily problems are improved. Learning takes place only when communication takes place between the teacher and the pupil and concepts and ideas are grasped fully and fixed well in the minds of the learners.

Several approaches are available for educational communication. Communication procedures are planned and unified activities designed to help pupils and teachers attain the desired outcomes working together. Appropriate use of different approaches and techniques calls for knowledge, skill, time, ingenuity and effort. A creative teacher will find the time and other resources to excel in teaching.

The progress of science is marked not only by the accumulation of knowledge, but also by the emergence of scientific attitudes, methods and aids Teachers of Home Science are therefore confronted with an overwhelming volume of materials, texts, programmes, pamphlets and the like, purporting to provide information for pupils. The correct choice of the method or technique of communication is an essential aspect of teaching. Reaching the goal 'some how' should not be the aim, but reaching it conveniently, easily, quickly and effectively through proper choice and use of techniques of communication should be the objective. The effectiveness of a teacher is reflected in her objectives, planning and effective use of appropriate methods of communication.

Teaching, that is, imparting education requires effective communication. Communication techniques form the concrete bridge to help the learner reach the goal. Communication involves: the communicator (the teacher), the communicated (the pupil) and the message (lesson). When the process of communication takes place in a linear direction, as shown below :

Communicator———→ Communication———→ Communicated
(Teacher) (Message and process) (Learner-receiver)

there is only one-sided activity. The teacher alone talks, the pupil may or may not hear or respond On the other hand, if communication is effected in such a manner that pupils who are the receivers will also respond, as illustrated in the circular or triangular diagram on page 106, teaching and learning become inseparable and communication, a two-way process.

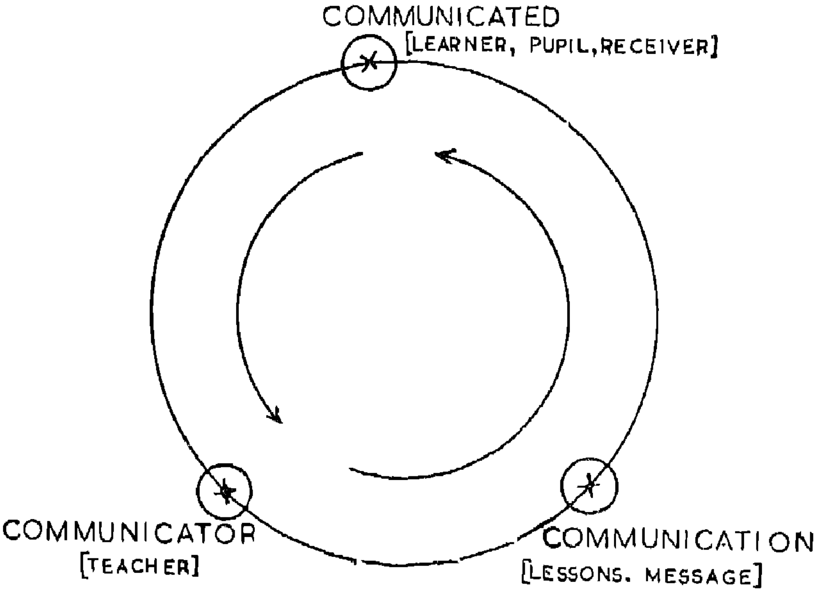
In the circular or triangular process, communication is a mutual experience. The communicator communicates the message. The pupil receives the message from, and reacts and responds to, the teacher through his expressions. Thus the teacher gets to know whether or not the pupils have received the message. Such evaluation is an integral part of good teaching.

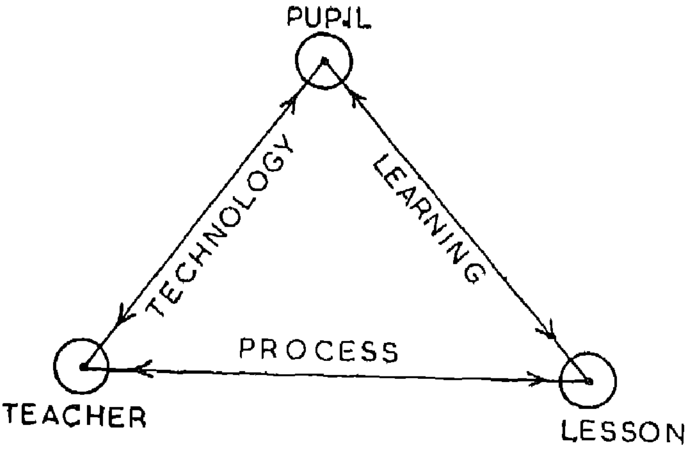
One who teaches should also learn A teacher cannot teach satisfactorily, unless she learns also simultaneously as shown by the feed-back in the two-way arrows in the diagram. In order to facilitate the cyclic, circular, triangular, never-ending process of communication, the teacher needs communication-skills, which are gained through a knowledge of the methods of teaching, outlined in the next chapter. In recent terminology, " method " has been replaced by ' technique ' and ' Educational technology ' is used to signify ' teaching '.

The characteristics of good teaching are : promoting reflective thinking and self-activity; applying psychological findings, using socialized classroom techniques, individualising instruction using several resources and gearing teaching to the objectives at each stage. The teacher should know the appropriateness of particular approaches of communication to different situations and use proper methods of communication. Lecturing should be minimised and combined with other methods to bring about a creative interaction between the teacher and the taught, to communicate the lessons and to make learning permanent. For this purpose, the teacher needs to communicate the lessons through action, involving the pupils in seeing, observing, conversing, writing, drawing, painting, singing, dancing and such activities, in short, in ' doing '.

Approaches which facilitate the communication process

The approaches which facilitate the communication process in Home Science are :


COMMUNICATED
[LEARNER, PUPIL, RECEIVER]
COMMUNICATOR
[TEACHER]
COMMUNICATION
[LESSONS. MESSAGE]


PUPIL
TECHNOLOGY
LEARNING
PROCESS
TEACHER
LESSON

A. Individual work
B. Group work
C Team work, and
D. Their combinations

A. *Individual work*

When facilities and resources are adequate, each pupil in the class is assigned individual work. He works independently on his allotted task. Individual work is the most effective way of teaching and learning

B. *Group work*

When resources and funds for buying the necessary materials are limited, equipment scarce and enrolment large, pupils are divided into groups and each group assinged a job, in which pupil carries out a specific task. The teacher watches carefully the division of duties among the members of the group so that everyone has equal opportunity to contribute to the thinking and learning aspects and gain practical experience. Group work promotes team-spirit and co-operative achievement.

C. *Team work*

By dividing the class into ' teams of families ' and assigning to each team, a number of responsibilities, co-operative effort in the planning and execution of teaching is promoted Two or more pupils work together, each on a separate assignment which together with those of the others in the team, fulfils the duties of the team or family. Each member of the family works independently on his part of the team's assignment, but in collaboration with others, all working together for the mutual benefit of the team This approach helps pupils appreciate their roles as members of families and as future parents. They get to know how to perform different tasks and carry out a number of activities simultaneously, such as preparing food for the family, caring for the baby, helping the toddlers, receiving the guests, answering a call, looking after the guests, marketing and such. Experience in the planning and organization of work and the timing of each activity to accomplish the work within the target time are some of the learnings in this approach in teaching. This method requires of the teacher, much planning in advance and full instruction.

D *Combinations of individual, group and team work*

For effective teaching, a teacher can handle at the most 35-40 pupils in a class and not more than 20 in a practical session. All the pupils would need opportunities for individual work in practicals and participation of all types in the class. Individual work can be assigned in terms of conducting experiments, surveys, home projects and writing tests. For group work, the class may be divided into groups or families of three or four, or teams of two. In order that pupils acquire experience under different conditions, various types of facilities and equipment, similar to those existing in their homes at various socio-economic levels of the community should be provided. Each group, family or team, should rotate among the different working areas and gain experience in all aspects of Home Science, working under different conditions.

Procedures which help the communication process

Some procedures which help the communication teaching process are:

A. Herbartian steps
B. Observation
C. Enquiry and discovery approach
D. Use of Audio-Visual aids, and
E. Socialised techniques

A. *Herbartian steps in teaching-learning*

John Frederick Herbart (1776 — 1841) of West Germany was a skilled teacher and profound philosopher. He is regarded as the '*Father*' of modern psychology and modern science of education. He explained that the three functions of the mind were. knowing, feeling and willing. His concepts of 'apperceptive mass', 'concentration', 'correlation' and 'many sided interests' are still valid in teaching. The aim of all instruction is cultivation of clarity, definiteness and continuity of thought. To 'instruct' the mind is to 'construct' it. Based on this concept, Herbart formulated four steps of teaching as clearness, association, system and method. These steps have been modified, as the widely known Herbartian steps in teaching-learning. They are:

(1) Preparation
(2) Presentation
(3) Comparison or association
(4) Generalization, and
(5) Application

1. *Preparation* : The minds of the learners are prepared to receive the new knowledge, through suitable introduction in the context of previous knowledge through questions and answers for a brief interval.

2. *Presentation* · Presentation involves joining new information to the old, dividing the information into sections if necessary, connecting each

section with what had been done before and what will follow. Priority is given to deciding what is to be presented and how much is to be presented.

During the presentation period, the teacher aims at concentrating attention of the pupils on the subject She channels the discussions accordingly. The order of her presentation is logical, characterised by vividness, emphasis, repetition and interest. She uses varieties of presentation · lecturing, narration and description, demonstration, pupil participation and discussion. She keeps in mind that the principles of successive clearness are sequential, leading to absorption and integration. She ensures participation of all the pupils during the presentation.

3. *Comparison or association* : The teacher offers pupils opportunities for gaining experiences through comparisons or associating new facts with old knowledge. Where comparisons are made, the two things compared must be well known. Only then pupil's interest can be aroused and they can think creatively.

4. *Generalisation* : The principles or points abstracted during the previous steps are put together into a unified form. During this period the teacher remains at the background while pupils draw inferences.

5. *Application* : Knowledge is for use. Application puts knowledge into vital connection with the needs of daily life. The mind of the learner now moves from the particular to the general and from the general back to the particular. The pupils reach to the universal from the individual and apply the universal again to the individual to be in a position, to use it.

B. *Observation*

Observation is basic to learning, enquiry and discovery. It is the process through which pupils can be stimulated to learn. Through observations, pupils develop ability to see phenomena and processes as they exist and operate, and to note important details, which otherwise might be overlooked. Observation helps pupils also to develop an objective approach and to participate efficiently in individual or group work. Observation helps pupils not only to 'see' but also to 'perceive' and realise that what they see augments what they learn from the book.

Directed observation can be carried out by the individual pupil or by small or large groups. Individual observation offers broader experience as a learning technique than group observation, since greater amount of skill, independence and responsibility are developed in the individual pupil. Participation in activities such as field trips, movies and exhibitions promote group observation, Pupils should be given preliminary knowledge of the situation they are going to observe through class work and references. Specific activities facilitate learning through observation. Repeated observation may be necessary for activities such as preparing vegetables, fruit juice or darning a hole. Therefore, pupils may have to observe the same activity several times. Repetition may be needed also to arrive at the mean of several observations, such as the mean weight of children. Observation must be recorded immediately and accurately. The use of an observation sheet will be helpful, since recordings can be entered easily and quickly during the observation period itself.

While observing people, pupils need to exercise decorum and restraint in order to elicit their cooperation and rapport. Observation on children in a pre-school (Balwadi) requires particular care and ingenuity on the part of the pupils, who should be as unobtrusive as possible. Their clothing, footwear and manners must be pleasant They should not make noise when they walk in the pre-school. Door ways should not be used as observation points. While observing children, the pupils must maintain a casual detached attitude and avoid talking amongst themselves. If children ask questions, they can answer pleasantly and briefly, but not go on talking to them or to the group. They should not raise questions to the teacher in the presence of children. An important question which may occur, can be jotted and put to the teacher after the pre-school session is over or at any other convenient time.

C. *The enquiry and discovery approach*

Scientific enquiry is search for truth or knowledge. In using scientific enquiry in teaching, emphasis is on the aspects of search, rather than on acquisition of, or memorising knowledge. For this reason, science classes should involve pupils directly in activities for discovering new knowledge. Application of the scientist's methods of inquiry to teaching is referred to as the ' discovery ' approach to teaching

Successful teaching and learning by the discovery method lies in asking the right kinds of questions which will lead to the use of scientific procedures for finding the right answers. There are numerous opportunities in a Home Science programme to use stimulating questions, discussions, laboratory experiences and demonstrations. Before starting a class, the Home Science teacher can ask pupils selected questions, answers to which will reveal what they already know and what they do not know. Pupils ' answers will help the teacher to modify her programme according to their needs, interests and knowledge. She can avoid repeating what children already know, or presenting material which is too difficult for their background. In addition to these, questions help to arouse interest of the pupils and involve them actively in the development of the lesson, in evaluating their progress, reviewing and summarising what has been taught and critical thinking that may lead to seeking additional knowledge on their own. Furthermore, questioning helps also to evaluate pupils' preparation for the class and mastery in home-work or previous work.

The questions asked in a Home Science class can be of two types: 1. evolutionary or serendipitious (sudden, unplanned), and 2. premeditated (planned). Planned questions are the basis for teaching science through discovery. Unplanned questions are spontaneous Children's questions are the potential sources for furthering creative thinking. Teachers' responses to children's questions set the atmosphere for further questioning Teachers should avoid asking questions which are vague, indefinite or unchallenging.

Teaching science through discovery is difficult; but once the teacher becomes familiar with the techniques for helping the children to discover the answers for their questions, then the teaching-learning process becomes interesting and meaningful(1).

D. *Use of audio-visual aids*

The teacher often faces difficulties and problems in communicating ideas and lessons to pupils in the classroom and outside. Many times pupils, to whom she communicate, her ideas do not comprehend them properly Sometimes they miss the point. She uses generally spoken or written words to communicate the messages. She frames a mental picture of the ideas to be communicated in advance and translates that mental picture into words. This translation may take place ineffectively, with the result that only a part of the mental picture is transmitted as words. The pupil who listens to the words of the teacher imagines a mental picture of the ideas communicated by those words. The words he hears may not convey to him the same meaning which the teacher had put into them. As Dale(2) points out, " when we read a book, we do not take meaning out of the printed page, but put meaning into the printed page". Therefore, when the teacher communicates ideas with the help of words, there is variation between the ideas communicated and the ideas comprehended in each step. This problem can be solved if the teacher uses other media of communication also, instead of relying only on words. The other media are known as the ' audio-visual aids '.

What are audio-visual aids ?

Senses are primarily the sources of contact between the individual and his surroundings. Intellectual activity is stimulated through experiences arising from the senses, The total intellectual activity is based upon sense perceptions Senses get their information through direct, vicarious or representative and verbal or symbolic experiences. Aids which impress the mind through the sense of sight are termed as the 'visual-aids', and aids which impress through the sense of hearing are called 'audio aids'. The aids which impress the mind through the senses of both hearing and sight are called the 'audio-visual aids'. The sensory aids help pupils in self-expression of various forms which are helpful to learning.

Audio-visual aids are not just motion-pictures or field-trips. They include a variety of experiences. They help to communicate ideas directly and effectively. Audio-visual aids are convenient teaching tools to help pupils understand the ideas which teachers communicate.

Why audio-visual aids are needed ?

Audio-visual aids help teachers and learners in many ways supplementing and modernising methods of instruction. They augment the teaching procedures educationally and psychologically. Educationally, audio-visual aids help to stimulate interest in learning, economise time and effort, reduce verbalism in teaching and impart broad education to the pupils. When aids and films pertaining to other countries are used, international understanding is promoted. Audio-visual aids provide variety in the class-room procedures. Psychologically, audio-visual aids play a significant role in strengthening memory because they:

1. Make the learning atmosphere life-like, realistic and interesting. Thereby, pupils acquire a comprehensive understanding of the lesson.
2. Facilitate communicating to pupils of varying abilities and capacities.
3. Make it possible for the teacher to convey to pupils abstractions meaningfully.
4. Help pupils form accurate concepts,
5. Enable pupils use different senses, and
6. Add joy and interest to learning. In the transition from home and play to school, audio-visual aids bridge the gap effectively.

Not only children but adults also remember facts better if audio-visual aids are used to explain concepts. The pace at which education is spreading with more and more pupils pouring into the high schools, classroom teaching has to be augmented through large scale use of audio-visual aids. Therefore, in the developed countries like the U S. A. a new method has been introduced. Teachers give their lectures through television,

Classification of audio-visual aids

Audio-visual aids are classified as:

1 Auditory aids covering the radio, phonograph, recordings and television.
2. Visual aids including ·
    a. Graphic aids, pictorial material and representations — maps, charts, posters, diagrams and sketches
    b Display boards such as black-board (Chalk-board), flannel-board and bulletin-board
    c. Three dimensional aids such as models and actual things.
3 Visual-auditory aids such as .
    a. Sound-motion picture.
    b Television
    c. Exhibits with commentaries
4. Activity-aids .
    a Field trips and school excursions and journeys
    b. Demonstration.
    c. Puppet shows, dramatics and pageantry
5 Publications and leaflets.

Besides the direct aids, audio-visual aids comprise purposeful experiences, contrived experiences like models and mock-ups, drama, doll-play and shadow play, demonstration and field trips.

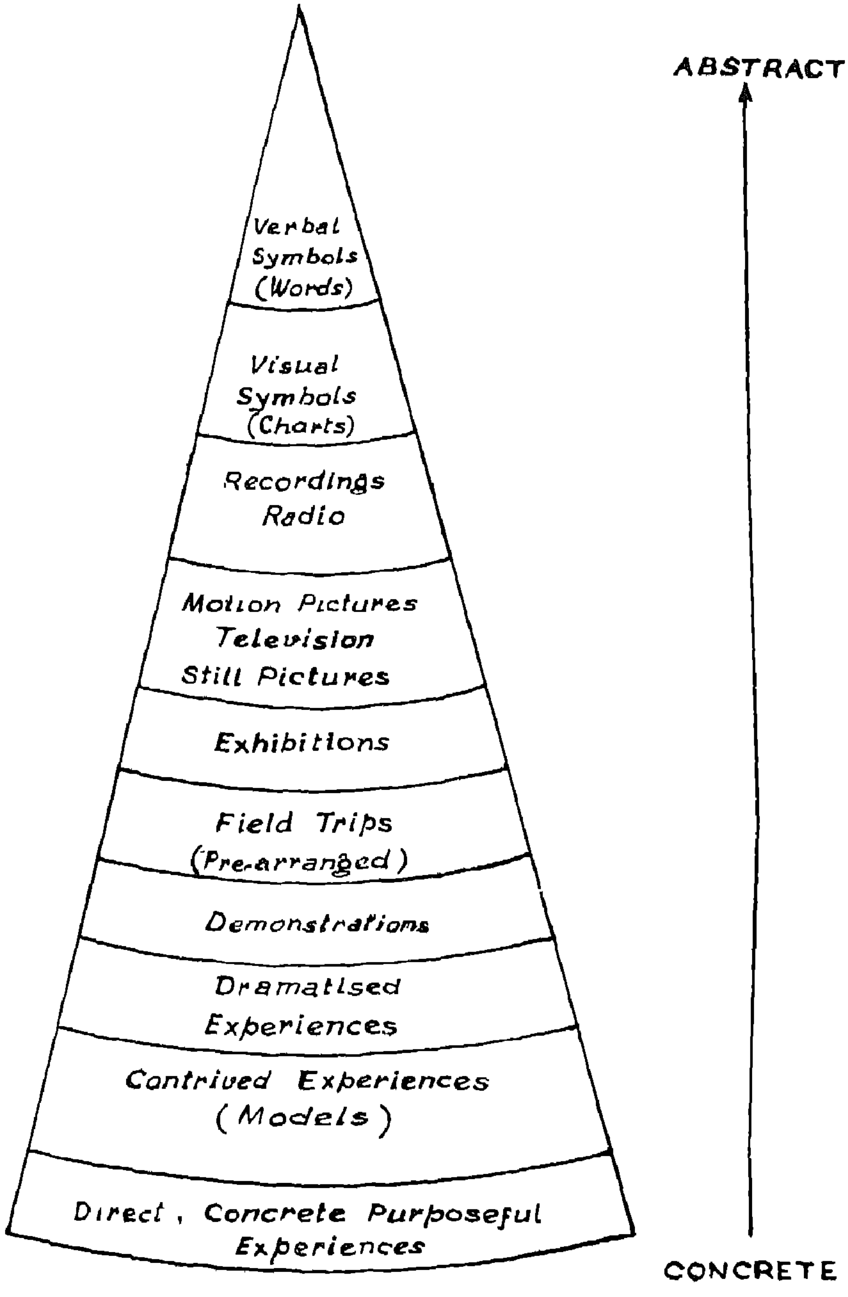
Dale(3) has described audio-visual aids and methods as a " Cone of experience ". The cone itself is a visual aid explaining the inter-relationship of the various types of aids as well as their individual positions in the learning process The most concrete experiences are placed at the bottom of the cone and the most abstract at the top. As the teacher moves from the bottom to the top, she leads the pupils, step by step, from the concrete to the abstract experiences.

Of the audio-visual aids represented on the Cone, some are projective aids and others non-projective Motion pictures, filmstrips, slides and still-pictures when projected through an epidiascope constitute the projective aids. These can be projected to large audience by means of projectors. The other aids which are non-projective have to be seen as they are Therefore, they can be shown at a time only to a limited number of people.

1. Direct purposeful experiences

Direct experiences are realities experienced first hand. For example, going to the Temple/Gurudwara/Mosque/Church, purchasing clothes in the market, preparing a meal, furnishing a room, examining different

CONE OF EXPERIENCE


ABSTRACT
Verbal Symbols (Words)
Visual Symbols (Charts)
Recordings Radio
Motion Pictures Television Still Pictures
Exhibitions
Field Trips (Pre-arranged)
Demonstrations
Dramatised Experiences
Contrived Experiences (Models)
Direct, Concrete Purposeful Experiences
CONCRETE

samples of toys for children, remodelling a piece of furniture and giving a party at school for mothers are direct experiences

Direct experiences are the most useful aids for teaching and learning. They make learning meaningful and realistic. There can be no better aid than experience If one wants to learn to arrange flowers, the best way is to collect flowers and arrange them. All new methods in education such as the activity method and the project method are based upon providing direct and purposeful experiences to children The practical work in the laboratories and workshops are also organised with this end in view.

While direct experience is valuable, it is not always ,possible to provide it. All the topics in the curriculum may not lend themselves for such treatment Furthermore, this method consumes a great deal of time and money.

2. Contrived experiences

Contrived experiences can be used when direct purposeful experiences are not available. A contrived experience differs from the original in size, complexity or both Models and diagrams provide contrived experiences. A working model of a water pump helps pupils understand easily how the real pump lifts water. A model of a loom shows how cloth is made. A model of a stove explains how food is cooked. A model of a house shows the allotment of space for living functions. Some models are magnifications of small objects such as a mosquito or the human eye. Some models are miniature representations of huge objects such as a house, textile mill or flour mill. With the help of the models, relationships between the different parts of the object can be established and their working explained

3. Dramatised experiences

Dramatisation is a substitute for real experience. Dramatic experience helps pupils get closer to realities which are not available at first hand. Dramatisation is a reconstruction of an experience and a method of interpreting social, political and religious beliefs. Being a flexible medium, it can be adopted to any subject and to any audience.

Dramatisation can be utilised in schools in different forms, from the informal spontaneous acting out, to carefully rehearsed full-length plays, with costumes and scenery. Between these two extremes, are puppet shows, pageants, pantomime, tableau, dialogues and mock conventions. The role of the host and guest at a dinner party, telling stories to children, how to teach or how to entertain guests can be acted out informally. The pupils who enact the characters feel like the characters

DRAMATIZATION USED AS A TEACHING METHOD IN THE CLASS

themselves and 'become' the characters. The subject-matter conveyed through dramatisation is stirring, attention compelling and not easily forgotten. Both the participant and the observer remember it for a long time. Dramatisation calls for creative ability, developmental learning and experimentation in languages and fine arts It gives opportunity for self expression and use of imagination. It develops knowledge of subject matter, skills for effective listening and observation, poise, diction and co-operation.

There is great scope for offering pupils dramatised experiences in Home Science classes. Stories of family living, health and hygiene and social reform may be written in the form of dialogues and pupils help to enact them for the class, whole school audience on special occasions and during public celebrations. They can be enacted in the classroom itself without elaborate preparation. Dramas enacted in the classroom are of great educational value.

Puppetry

Puppet plays have a distinctive position in theatrical art. They are interesting educational experiences for pupils They have many advantages over the regular stage play. They can present ideas efficiently and economically with extreme simplicity, without elaborate scenery or costume. Puppets can be made easily by the pupils using paper pulp or clay. Dramas can be enacted using the puppets as characters. Each pupil can take charge of one puppet, make it, act and speak out the dialogue for the puppet.

Dramatised experiences include also skits, role playing, puppetry and pantomime.

PUPPET PLAYS ARE INTERESTING EDUCATIONAL EXPERIENCES FOR PUPILS

4. Demonstration

Demonstration is a simple and effective teaching aid. It is visualised explanation of an important fact, concept or process It helps to communicate subject-matter visually and audibly to a small group, usually 20 pupils. The teacher demonstrates the lessons to the pupils, who observe her activities, repeat what she does, see the results and become convinced. Learning is more effective when " seeing " is involved than just " hearing ". When seeing and hearing are meaningfully combined, the presentation creates interest in pupils and makes their learning lasting.

5. Field (educational, instructional) trips and excursions

When a trip is arranged by the teacher for educational communication, she puts the school ' on wheels '. Trips take the pupils for an ' on the spot ' study of the environment bringing them face to face with reality. Since all the experiences required for learning cannot be brought into the classroom, pupils must be taken beyond the four walls of the classroom to participate in and learn from the community. There is no better way to introduce, review, clarify and give meaning to a lesson on a process, than by a trip where the actual process can be observed. Hundreds of facts can be learned through a trip to a pre-school, park, Science museum, Botanical garden or Poultry farm. The teacher should survey the community and select such places in the locality as would be of educational value.

The purpose of field-trips are to assist pupils to:

(a) Obtain firsthand experiences of what they are studying and investigating.
(b) Observe and scrutinize carefully some person (s), place or activity.
(c) Get clarification of concepts and attitudes.
(d) Embark on constructional and educational activities.
(e) Fulfil the survey and the collection purposes.
(f) Broaden and change attidues along the desirable channels.
(g) Enjoy a healthy change from the routine school setting and satisfy the urge to be out-door, and
(h) Add interest, variety and involvement to learning situations.

Educational trips should be made a requirement in the curriculum. They are of three types: excursion, field trip and study tour. *Excursions* are planned visits to places outside the school. They are undertaken to cover short distances to see how other people live and work. The trip may be for a single or double period, a day, a week-end or a vacation. Pupils may be taken to a bakery to see how bread is made, to a water supply station to see how water is purified, to a house-site to see housing conditions or to a knitting factory to observe how garments are manufactured.

Field trips are undertaken to nearby places, often within walking distances. Field trip does not mean that pupils should be always taken out and be away from the school. The trip can be even within the school to see the garden, carpentry or weaving It may be around the school to see the food market, Post Office or Fire Station Such trips can be completed within a single class period.

Study tours are extensive excursions involving journeys to a number of places in a sequence. A tour covers a wider area and its duration is usually longer than that for the other types of trips.

Educational trips may be independent or formal under supervision. In an independent trip, a group of pupils may go to a place to learn certain facts. In the formal trips, the entire class proceeds under the teacher's supervision to a designated place(s) to learn specified facts.

The steps which are essential for the success of any type of educational trip are.

(a) Purposing
(b) Planning
(c) Execution
(d) Evaluation, and
(e) Follow-up.

(a) *Purposing*: The specific objective of organising the trip should be clearly defined and impressed upon the pupils before commencing the trip.

(b) *Planning*. Planning in advance is important in all educational trips. Planning should include.

(i) Deciding the objectives of the trip and the places to be visited.
(ii) Obtaining permission of the Head of the institution and of the parents of the pupils concerned.
(iii) Planning the detailed itinerary of all the places to be visited, with dates and timings.
(iv) Collection of necessary finance.
(v) Securing the written permission from the respective authorities to visit the selected places.
(vi) Prior arrangement for transport and accommodation while halting.
(vii) Organisation of the pupils for all the responsibilities in the trip, and
(viii) Collecting all the information and materials required for the trip.

The teacher and pupils must work ahead of time, set goals for the trip and plan the trip co-operatively so that the pupils are motivated, understand that the trip is educationally significant and become vitally interested in the programme planned Before setting out they should discuss the key ideas to be observed and explored. They should pick out the specific facts to be recorded. Plans must be made for evaluating the learnings gained from the trip in the light of the goals set.

(c) *Execution* : The following guidelines will be useful in the execution of the trip :

(i) Prepare the itinerary and give copies to pupils and their parents.
(ii) Have the pupils divided into groups Let each group select its leader. Impress on the pupils the need to follow the leader and adhere to the programme. Allocate specific responsibilities to the different groups, distributing all the duties to be carried out.
(iii) Have a medicine chest containing simple but effective remedies for common ailments such as fevers, colds, stomach aches, indigestions, head aches, bruises and small injuries.
(iv) Help pupils observe decorum while visiting people and institutions.
(v) Have all talks during the trip centred round what pupils have seen and what they will be seeing.
(vi) 'Early to bed and early to rise' should be the motto during the trips to conserve strength.
(vii) Help pupils listen carefully to what the guides say at different places they visit.
(viii) Help pupils respect the prevailing customs and traditions in the places they visit, even though it may not be possible for them to understand or practise them.
(ix) Impress upon the pupils that they have freedom to see and explore within the limits laid by the party and hosts. The success of the trip depends upon a harmonious blending of authority and understanding.

(d) *Evaluation* · An educational trip will be incomplete, in so far its educational purpose is concerned, if it is not evaluated in terms of the purposes set prior to the commencement of the trip. Evaluation should be with reference to the understandings and appreciations of the pupils in regard to what they have seen and received at the different places visited. Check-lists and anecdotes could be used for such evaluation.

(e) *Follow-up* : The teacher must provide pupils full opportunity to discuss the trip after it is over. The conclusions based on their observations must be recorded in the reports on the trip.

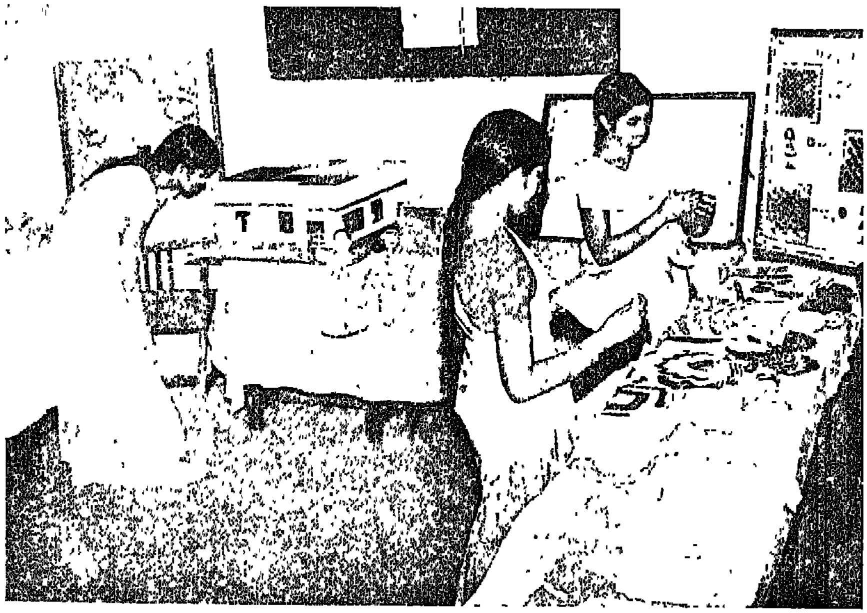
Creative projects such as the following could be carried out as follow-up .

(i) Writing 'Thank you' letters to all who had helped in the different places including guides.
(ii) Reporting to the other classes in the school.
(iii) Drawing and writing poems and stories, using bulletin boards and displays.
(iv) Organising a meeting of the parents to give the high-lights of the trip.
(v) Organising an exhibition.

A well-planned and beautifully organised trip is education by itself, both for the teacher and the taught. It offers opportunities for work. It trains pupils to use their hands to lift their own luggage, eyes to observe keenly, ears to gather all verbal information, heart to react with gratitude and love to different situations and scenes on the way and mind to assimilate all the ideas and thus stimulate the growth of the pupil in all spheres—educational, social, cultural, aesthetic, moral and spiritual.

6. Exhibitions

Exhibition is another aid to teaching Exhibitions are now increasingly used as a medium for mass communication All types of



AN EXHIBITION WITH OBJECTS, MODELS AND GRAPHIC AIDS DISPLAYED exhibitions are organised in towns and villages these days In big cities, there are permanent exhibitions for the public all the year round These exhibits aim to convey new ideas, findings of research and the role of science in industry and agriculture. School exhibitions are also common to-day.

An exhibition is made up of many exhibits. An exhibit is something observed, an arrangement of three dimensional materials which communicates ideas and information to the observer. A good exhibition is the product of a deliberate planning under controlled conditions It has immense educational value.

Many schools arrange exhibitions as annual features along with some celebrations. They can be held during PTA (Parent Teacher Association) meetings, annual and other important days. Such exhibitions help to explain and transmit to the parents and public the aims of the school, its programmes, contributions, success and problems. The parents and community thereby get an insight into the set-up in which their children study, work and play. School exhibits can be posted also in strategic places in the community outside the school. Exhibitions in the school help to convey specific information to other classes or groups within the school itself. They tell the whole school what one particular group has accomplished or is undertaking. Exhibits serve also as an excellent means of testing whether or not the pupils have understood a particular concept. As pupils participate in preparing the exhibits and organising and explaining the exhibition to the public, they learn new concepts and skills.

Exhibitions may be "ready-made" or "school-made". An exhibit which has been planned and prepared by pupils has more appeal to the parents and school community than others. Interesting exhibits motivate pupils to explore further and obtain new information.

Exhibitions can be made interesting and instructive by displaying real objects, three dimensional models made of clay, plaster of paris, paper pulp, bamboo, straw, card-board, waste cotton, shells and similar other materials. Electrically operated working models, dolls and puppets, colourful and clear still pictures, posters, charts, graphs, simple displays of cut-outs or complex dioramas, slides, filmstrips and films add much interest.

The basic principles to be followed in organising exhibitions are.

(a) Have an overall theme. The exhibition must be educational in value and not a mere show. An exhibition should always have a message which can be perceived at a glance without the need to read it. The message must be crisp, short, clear and relevant. It should convey only one central idea and unity in the display.

(b) Keep exhibit simple with a few things, few words, bright colours and strong lines

(c) Use movement or action, if possible.

(d) Follow the principles of art:

Balance
Colour
Heaviness (apparent) and lightness
Masses
Shape
Emphasis
Rhythm
Proportion in margins and objects used.

(e) Take care of details.

(i) The place of the exhibition must be centrally located and easily accessible. Determine the location and size of the exhibit space. Select the exhibits accordingly so that the arrangement is not crowded.

(ii) An exhibition is to be seen Some exhibits have to be read and understood as well. Therefore exhibition must be put up where it can be seen.

(iii) The exhibits must be labelled approximately. The titles must be short and simple. The labels should be uniform and legible. They must be readable from a distance. Brief statements must be used instead of long abstract expressions. Do not use six kinds of lettering and five sizes of cards in the same exhibit.

(iv) Only up-to-date and fresh materials should be used. Out of date and soiled materials or data should be avoided.

(v) Use dramatic effect such as ample space, spot lighting, unified decoration and background material to ensure an attractive and unusual appearance and immediate recognition of unity. From one exhibit to another, there must be grace and time for reflection. If there are three pieces or groups of things to show, try displaying them at different heights. If there are several things to show, have a focus or centre of interest so that the eye is directed from the one part of the exhibit to another.

(vi) Have every pupil represented in the exhibition. His parents will be looking for his work.

Exhibits should involve many senses—visual, tactile, auditory and others. Colour and sound impart attraction to exhibits. Certain colours mean certain attributes. For example, red-danger; brown-dull; green-production; yellow-prosperity; grey-submission; orange-cheer and black-sorrow.

Motion in an exhibit, is a great attraction to children. Music and talks add interest to an exhibition. They may be reproduced by automatic record-players. People like to participate by touching the objects displayed and examining them. Therefore, provision to give the viewers something to touch, turn, press, operate, open and so on will help to sustain their interest.

Exhibits should be arranged with appropriate headings. None can compel a person to look at an exhibit, except the exhibit itself. The first visual impression arrests the viewer, creates in him an urge to see it and persuades him to learn from the exhibits. The exhibits should thus compel the viewer to see. In business, this principle is used ingenously to advertise products. Harmony, balance, artistic designs, judicious use of illumination and colour effects make an exhibition attractive and hold the attention of the viewers. Some exhibits may not attract people regardless of the efforts taken and the expenditure incurred. Then, they do not serve any purpose.

For planning an effective exhibition, the teacher should follow the principles of advertising The object of all advertisement is to sell an idea. Advance planning and preparation are essential for making an exhibition successful. The theme selected should be suitable to the age level of the pupils or audience. The ideas to be presented must be collected carefully and decided upon.

The teacher should study the theme in depth and guide the pupils in the preparation for the exhibition, suggesting books and journals for reference and places to visit, wherever relevant. Both the teacher and pupil should survey the place allotted and the material and accessories available : pictures, tables, racks, screens and others. Thereafter they should decide what materials will have to be displayed. The teacher can collect exhibits and necessary material from institutions like museum, laboratories, art centres and other places or make them in the school. The teacher must make a map of the place and apportion space to subtopics, keeping in mind the relative importance of each part and have all phases represented. The place where the exhibition is to be held must be lighted well. Considering the time of the day and the background, automatic lighting devices can be used. The teacher should also arrange for the transportation of furniture and materials to and from the place of the exhibition.

Selected pupils must be trained to explain the exhibits to the viewers They should be respectful in their attitudes, level-headed and intelligent to answer questions. After an exhibition is over, the teacher should see that all material is returned to the school or owners.

The next step is to decide how to present the ideas. For this, a variety of display techniques should be used. The following points will help the teacher to put up an effective exhibition :

(a) Why an exhibition — To have the message(s) reach many people. To save time for viewers and to have pupils " learn by doing ",

(b) What to say in an exhibition — To decide what to say consider :
Who the viewers are ?
What their interests are ?
What you want them to see, understand, think or do ?
How you can reach them most effectively ?

(c) How to exhibit — Consider what services are available for putting up the exhibits — carpenter artist, masons and others. Do not just " show ", or " show off ".
Use real objects, wherever possible (Models and photographs can be substituted, if necessary)
Plan some participation from the viewers.

Some Suggestions for Exhibits in Home Science Class

Theme	**Exhibits**
Play things for the Pre-school Child	Home made toys, grouped according to the developmental stages of the child. Books, bulletins, pamphlets.
Storage of equipment in the home	Good or poor ways of storing equipment. Examples of good storage facilities like vertical shelves, half shelves, sliding shelves, knife holders and others. Kitchen cabinet drawers and cupboards to show the special features.
Labour saving devices	Good and poor equipment such as : paring knives, handles of utensils. Posters with cartoons, sketches and captions. Time-saving " gadgets ", labour saving devices — with costs and sources.
Different types of fabrics	Illustrative fabrics. Swatches and albums to show good, fair and poor design in dress material.
Construction and Care of Clothing	Sewing equipment. Different types of pressing equipment. Steps in pressing garments, drafting designs.
Nutritive role of green leafy vegetables, new high yielding grains	Collection of edible-leaves with names. Collection of hybrid stains of grains and vegetables.

EXAMPLE FOR AN HOME SCIENCE EXHIBITION

Plan of the exhibition :

(a) Theme	— " Scope of Home Science "
(b) Audience	— Pupils, teachers, public.
(c) Place	— The High School.
(d) Date and time	— 18th December, 1973; 4 p.m.

The theme — ' *Scope of Home Science* '

In a Flannelgraph, the theme ' Scope of Home Science ' is represented as a tree The tree shows that the goal of Home Science education is to help pupils in their personal, home, family and community life towards finding fulfilment. Learnings from the basic sciences, humanities and fine arts form the foundations for home-making, which is the most sacred function of the family.

The areas of Home Science are :
Child care and development.
Human relationships
Foods and nutrition.
Home (Household) management.
Housing.
Related art.
Textile and clothing, and
Health, home nursing and first aid.

Understanding children, their needs, emotions and stages of developments are important in family life. Children's recreation, toys, food and clothing form part of this area.

The model kitchen unit shows the phases in planning, preparing, serving and preserving food Hygienic handling of food, use of labour-saving devices, comfortable working arrangements, proper lights and installations are part of the unit.

Home Management comprises management of family, resources such as time, energy and money, budgeting, beautifying the home, spending leisure time constructively and methods of cleaning various items in the household In clothing, clothing needs according to age, climate and other conditions, quality of textile fabrics, the principles of making garments, colour combinations, care of clothing and stain removal are included.

The unit on health should emphasise the factors essential for maintaining personal, family and community health. First-aid measures in case of emergencies are included

All these activities in the Home are intimately connected with and conditioned by development of sound human relationships and spiritual and moral values. The puja area shows the influence of religion on the growth and satisfaction from family life

Thus the exhibits include .

Model kitchen unit with smokeless chulahs and labour saving devices.
A day's menu for pupils, through models and actual foods.
Children's toys and play place.
Flash card on care of the pregnant mother.
Chart — Do's and don'ts for an expectant mother.
Samples of textiles from the different states.
Stitched and drafted garments.
Flower arrangement indicating colour combinations.
Budget charts.
Health posters.
Stain removal-chart.

7. Motion pictures

Motion picture helps to reconstruct periods with dramatic intensity and realism. It facilitates understanding of people, ideas and processes. Therefore motion picture is one of the powerful media of communication, facilitating learning through many senses. In a motion picture pupils sit in darkness. The screen is the only luminous spot in the room. Pupils are protected from external distractions and everyone's attention is focussed on the screen. Hearing is thus concentrated.

Pictures which move capture more attention than those which stand still. The movement, colour and expressions in a motion picture make it an attractive and effective medium for teaching

Filmstrip and slide

A filmstrip is made up of a series of negatives arranged in logical sequence. The teacher has more freedom with the filmstrip than with the motion picture, since she can stop the projection at any point, explain each frame, and screen it for any length of time.

Teachers can prepare their own filmstrips for class teaching. Such filmstrips may be 30 frames in length or more according to needs They can be directly photographed or drawn first in the form of charts or diagrams and then photographed. Slides can also be prepared by the teachers.

Judicious use of films, film strip and slides calls for wise selection, The following steps will help in the effective use of the films and filmstrips.

a. Select a film or film strip that is appropriate for the class.
b. Preview it and take needed notes.
c Prepare the class for the film show. Give pupils some questions or problems to answer which, they will look for material from the film or film strip.
d Show the film or film strip.
e. " Follow-up " with questions and discussions in the class, and
f. Evaluate the film for future use.

The Central Film Library in New Delhi, the State Film Library, Departments of Information and Publicity, Planning, Education, Rural Welfare and Social Welfare have a large number of films and film strips available for loan to schools.

8. Recordings, radio and audio-tapes

Recordings, radio and audio-tapes are less direct than the audio visual experiences previously discussed. However, they are valuable teaching aids and add much interest to a class in explaining situations, describing methods and minimising talking.

9. Visual symbols — graphic aids (charts, maps and diagrams)

Visual symbols include black-(chalk) board, flat maps, diagrams, posters and charts. They are more abstract than still pictures, but are good aids to illustrate ideas They convey ideas by means of symbols, which need to carry a key. Pupils may have difficulty in understanding symbols which are complicated. Presenting too many concepts in one chart confuses pupils.

10. Verbal symbols

Verbal symbols bear no physical resemblance to the objects or ideas which they represent. For example, the word ' iron ' does not look like an iron and feel like an iron or press clothes like an iron But it is a term which has a common meaning for all of us. Although verbal symbols are abstractions, they are indispensable for communications. The Home Science teacher must possess a large vocabulary and ability to express her verbal explanations attractively to pupils.

Using combination of teaching aids

Home Science teachers should use as many of the teaching aids as possible to make their teaching real, interesting and meaningful. Wherever suitable aids are not available, they should improvise them. Aids such as posters, charts, flannel graphs, models and exhibits can be prepared by the teachers and pupils to meet their needs

E *Socialised techniques*

One of the purposes of education is to develop social efficiency in the learners enabling them feel at home and move satisfactorily in social groups, through developing the skills and abilities necessary to adjust to others. Personal adjustment is an important pre-requisite to move amicably in social groups. For this purpose, the educative process should become a socialised activity. Socialised techniques must be used in the teaching — learning process. The school and class constitute a miniature society, in which pupils come in contact constantly with different groups of people and a variety of social situations. Socialised classroom is one in which friendly spirit of co-operation prevails. The major components in a socialised class are: the teacher, the pupils, the atmosphere, the facilities and the communications.

The teacher is the guide, consultant, counsellor, advisor and director of the pupils She does not dominate but gives opportunities to pupils for social development through her proficiency and efficiency. She contributes to the learners through effective involvement of their interests, initiative, originality and co-operation. She uses democratic approaches in teaching. The pupils imitate the behaviour pattern of the teacher. The teacher's qualities of ' give and take ', group work and co-operation form the basis for the social experiences of the pupils in the class-room and outside.

Freedom and responsibility go together. Freedom has its own responsibility. This truth is instilled in the minds of pupils through socialised techniques. Discipline is not perfect silence. When there is activity, there will be some noise. The teacher is alert to sense problem situations and take the necessary action immediately to bring order. The Physical facilities such as furniture, equipment, books, ventilation, lighting, blackboard and other aids help in fostering the physical, mental, social and intellectual growth of the learners. In such a setting the spirit of the class is salubrious.

During excursions, field trips and other special occasions which call for working together, the teacher must watch how the pupils behave. She must bring about socialised interactions in the class room, educate the pupils patiently so that they develop the skills essential for modifying their behaviour patterns and become good citizens.

Socialized techniques are all those situations which bring pupils together — Conversations, discussions of all types and dramatisation, They help pupils acquire abilities and attitudes which are important in making personal adjustments in social situations. They foster co-operation, respect and consideration for the rights of others and ability for carrying out responsibilities. Socialised techniques include :

1. Recitation
2. Conversation
3. Discussion
4. Role-playing
5. Pantomime
6. The skit-script technique, and
7. Brain-storming

1. Recitation

The term "recitation" means a re-citation of learned lessons. Recitation periods offer an opportunity for pupils to recite to the teacher what presumably had been learned before class. Recitation has become in reality a testing period to see whether or not pupils have done their assignments — hence the use of the question and answer procedure or the recitation on the assigned topics, in which pupils recite all they can remember of what they had studied.

2. Conversation

Conversation is the basis of all socialised techniques Conversation is oral communication of ideas and experiences with others or the exchange of experiences between two or more individuals in an informal way. Conversation helps the teacher to know the learners and guide them Therefore, in a socialised class-room, the teacher gives opportunities to the learners to converse in the class and express themselves. If the teacher goes on delivering a lecture continuously, pupils will lose interest. Conversation between the learner and the teacher, and between the teacher and the learner is a basic tool to bring about a socialised environment for learning Conversation can be channelised constructively through discussion sessions of various types.

3. Discussion

Discussion is thoughtful consideration of the relationships involved in a topic or problem studied by a group, through organised conversation. The relationships are analysed, compared, evaluated and conclusions drawn. Discussion can be used at all stages of teaching, depending upon the topic, nature of the group, number of members in the group, the arrangement of the group for discussion and the time at disposal for discussion. The following are the ways in which discussion sessions can be conducted:

(a) Group-discussion
(b) Circular discussion
(c) Panel discussion
(d) Buzz
(e) Symposium
(f) Seminar
(g) Debate
(h) Forum
(i) Committee
(j) Workshop

a. *Group discussion* : Group discussions promote socialised interaction. Groups may be formed spontaneously, informally or formally through specific effort. Group discussions are needed:

To locate problems of interest and significance.

To define and clarify the nature and extent of the problems and to get the best possible solutions.

To get acquainted with other people and to share ideas with them.

To find new ideas and insights which will help to solve the problems of common concern and personal problems.

To learn something about working together in groups so that one can benefit from the experiences and contributions of all. The product of the joint effort of members of a group is superior to the best efforts of any single person in that group.

Who makes the group discussion successful ?

Everybody in the group makes the discussion successful.

Everyone in a group is responsible for seeing that the discussions are productive and worthwhile. This means that no one should feel that he has no responsibility for the success or failure of the group.

In informal group discussions, the teacher and the pupils behave as members of a family and discuss the matters and problems that have come up for discussion. Remaining behind, the teacher may assume leadership, initiate and conduct the discussion. In the formal type, the group is organised for discussion with a discussion leader, participants, consultants, resource persons, recorder and reporter. The leader-selected, elected or nominated takes up the responsibility for initiating and maintaining the tempo of the discussions and manages the group discussion. The reporter maintains a record of the points made by different participants and makes a summary.

PUPILS IN GROUP DISCUSSION

For group discussions, the physical set-up of the classroom plays a significant role. The room arrangement depends on the type of activity planned along with the discussion and type of furniture and space available. The best way to have social interaction is to arrange the chairs in the form of a circle or semi-circle. This set-up will facilitate discussions.

(b) *Circular discussion:* When the group organises itself in a circle to discuss the matter, the arrangement is known as 'Circular discussion'. It aids in bringing about a face to face discussion with all the members of the group.

(c) *Panel discussion:* Panel discussion is carried on by a 'Panel' which consists of a small group of three to twelve members, in front of an audience. The Panel is headed by a Chairman or President. He will make it clear at the beginning itself what aspects of the problem will be discussed. He will open the discussion and other members on the Panel will join subsequently. Thereafter, the members of the Panel exchange their views creatively among themselves on the problems assigned The audience finds itself represented in the Panel selected. The Panel discussion may take place in rotation, each member expressing his views when his turn comes, or it may be done in a free manner when the members feel free to speak briefly as thoughts occur to them, one after the other. The audience may have an opportunity to put some questions to the Panel to clear their doubts.

(d) *Buzz*: Buzz sessions consist of breaking up a large class into smaller groups of approximately six members each, giving the groups a definite time for discussion, usually five to ten minutes, and then having a representative from each group report back to the whole class. A Buzz session may follow a lecture, panel discussion, symposium or the like, as a means of eliciting the reactions, responses or opinions of the group.

One form of a Buzz session is 'Discussion 66' wherein a class is divided into many groups having six pupils in each group, each of which will discuss the matter for six minutes.

(e) *Symposium:* Symposium is a discussion by different specialists or speakers on the same topic, emphasising its different aspects Symposium resembles a Panel in that it is a public discussion with approximately the same number of participants. But rather than discussing back and forth, the members present prepared speeches on different phases of the question or problem. Following their presentations, the members may operate as a Panel for a time. The audience seldom participates because the experts try to cover the topic from different angles The Chairman may open the discussion for questions and comments from the audience.

A Colloquy is like a symposium, similar to the Panel, involving one or more experts in the field to address, discuss, conference research and projects It helps to evaluate progress on research projects.

(f) *Seminar.* Seminar is an advanced socialised technique Prepared notes, papers other than extempore, reports on the work done by individual members is placed before the members of the Seminar, who critically evaluate and discuss the findings. Time is specified and regulated for reading the paper and discussion. The teacher, being the Chairman or the student leader, controls and channels the proceedings along the desired lines. Seminar requires much planning ahead, organising and collecting data before reporting, discussing and evaluation.

(g) *Debate*: Debate is a form of discussion providing an organised method of illuminating a topic or, of persuading an audience by arranging speakers on opposite sides of a proposition. A typical debate will have one or two speakers on a side.

(h) *Forum:* Since the Romans used the public place or market place which was known as the 'Forum', for holding open discussions, the term 'Forum' has come to refer audience participation in discussion. The Forum provides a period when members of the audience may ask questions of speakers or make observations on the issues. When describing a particular programme, based on the Forum approach, the word Forum is added to the words describing the meeting. For example: Lecture-Forum, Panel-Forum and Symposium-Forum.

(i) *Committees:* Pupils may be divided into different groups or 'Committees' and each group assigned a task or responsibility under the guidance of a leader of the Committee.

(j) *Workshop:* Educational workshop is a get-together for some creative educational activity. Working together successfully in groups is a skill needed in a democracy. While 'discussion' demands much talk, workshop is a 'shop for work' where work is done. A workshop is therefore not a talk shop. It is an activity-oriented technique. The group may initiate the workshop in a general session for guidelines and remarks, and break into smaller groups which meet for longer time to work on a specified task or particular theme The workshop may be conducted under the guidance of an expert in that field. For example, in a workshop on making audio-visual aids, an orientation lecture on the use of audio-visual aids may start the class. Thereafter the workshop will be sub-divided into smaller groups and each group will take up the preparation and use of one aid when the participants will actually prepare the aids. Group discussions can precede or follow the group work where needed. Group projects are also socialised techniques.

How to make the discussions successful

The success of all types of discussions depends on:

1. leadership, and
2. participation

1. *Leadership*

The leaders should help: the members of the group get acquainted with each other and draw up a feasible plan for working together.

They should let all the members know that their opinions and thoughts are very important to the group and feel free to express their ideas.

They should help the timid members feel confident and to become active, keep the dominant persons from monopolizing the time and encourage persons who have particular points to express them when they most needed to clarify a problem or to make the discussion lively.

Throughout, the leader should guide the group stay on the track.

The recorder should: keep a record of the problems, ideas, issues, facts and decisions as they are developed by the group and consult the group concerning the nature and scope of the reports to be made, provide the group with the summaries when needed.

He should also prepare final group reports.

2 *Participation*

The members should :

Listen to what others say, speak clearly and effectively and be willing to state opinions and give reasons.

Ask questions to bring out points that are not clear. They should share facts, contribute to the subject, point out problems and ask for facts when needed.

The participants should respect each other remembering that the needs, knowledge, skills and the personality of people whom he is working with are important. They should give credit for good work and express appreciations where deserved.

4. Role-playing

Role-playing is the spontaneous enactment or dramatization of a situation in which pupils impersonate roles representing various stages and occupations. It creates make-believe situations that evoke feelings and helps to see other people's outlook and feelings. By attempting to be in someone else's role and speak, feel and act like that person, pupils understand how people behave in real life situations. Role-playing offers an excellent means of bringing out into the open, emotional problem. The freedom to impersonate someone else gives a pupil opportunity to express and release his thoughts and emotions without feeling self-conscious and without making the problem appear personal. Eventually these impersonations help pupils to arrive at more satisfying or adequate patterns of behaviour.

Role-playing may or may not be planned ahead. Role playing depicts the characters of a situation well and explains the situation clearly with a tinge of reality. When feelings and emotions are expressed, the other person is understood better.

Role-playing is made up of a series of steps :

(a) Selecting the situation.
(b) Defining the situation and the roles by the class.
(c) Choosing participants for the various roles.
(d) Setting the stage and presenting the situation.
(e) Acting out the situation; and
(f) Follow-up discussion—evaluating the presentation.

The pitfalls in role-playing are that pupils will not act spontaneously if problem is not real to them, or if they are self-conscious. Role-playing fails when it is over-used or inappropriately used. It takes time to use role playing as a method.

5. The pantomime technique

The pantomime technique, differs from dramatisation in that the characters do not talk There are two possible types of pantomime performance. The first type involves selection of situations which are appropriate for demonstrating some " do's and dont's ". This kind of performance needs to have only two or three characters to be dynamic in action. The other type is longer, and has more characters It calls for an unobserved announcer to describe briefly the action of the performers as it is being carried out.

6. The skit-script technique(4)

The skit-script technique has considerable value in stimulating learning under certain conditions The scripts need to be written or selected carefully by the pupils and the teacher from different sources. They should be related to current class work.

Writing a script requires only a minimum of technical skills. Several types of scripts are popular in schools. One kind may be designed for a mock-radio or a mock-television broadcast. Another type of script is the double script, often referred to as 'Before and after' or 'Do and don't' scripts.

As the content of a script has been carefully prepared to convey definite ideas and impressions, the pupil will need time to become familiar with the script. Memorising the lines or having brief notes helps towards a smoother and realistic performance. Whether the lines are memorised or read, each performer should interpret his role in the light of his inner feelings. Otherwise, the performance may seem stilted and unnatural.

The major objective in all the socialised procedures is to promote the all-round development of the pupils, to help him co-operate with others, carry out the work assigned, develop discipline and take up responsibility. As Struck(5) emphasises, the basic ideas behind socialised instruction is educating for a progressively better society through co-operative effort.

Through socialised techniques, participants learn to take initiative, plan activities, express themselves, practise leadership, co-operate with others and develop ability to report and exchange views adequately.

Inspite of the limitations of time and applicability to some aspects of the syllabus, socialised techniques place the teacher and the learner in a free, interesting and stimulating situation.

7. Brain-storming

The 'Brain-storming' promotes mental stimulation, creative imagination and positive thinking. It can be used also as problem-solving technique. It is applied when many members are eager to give their opinions on a particular problem. It is used by several large business companies and research institutes Schools, colleges and universities also use this technique.

In brain-storming, a group of people sit around a table, or tables, to think and speak out their minds about a specific problem, without worrying about criticisms, or how "wild" their ideas might be. The problem is put before the group and each one is requested to give a solution or a comment without much time to think about it or discuss it. The suggested solutions are collected and studied. According to tests, people show greater creative imagination in such group thinking. In using the brain-storming method, therefore quick, wild and free thinking should be promoted. The more ideas, the better is the result. Combining ideas through adapting, expanding and modifying to improve on one's own or someone else's ideas should also be encouraged, without critical judgements, remarks and criticisms on any member's suggestions.

The session starts with the presentation of the problem by the leader and each participant is urged to give only one idea at a time. The flow of ideas should jump all around the table. Raising the hands up when one has an idea will help the leader. All the ideas presented, are recorded or written on a blackboard. The idea can be summarised or abbreviated to speed creative thinking, but should not be changed in thought. The quicker and informal the thinking is, the more enjoyable the session is. Usually 5-6 minutes are allowed for a Brain-storming session—never longer than 20 minutes. On an average 60-70 ideas can be collected in three minutes.

A difference of opinion exists about the desirable number in a group. Some favour small groups; others regard larger groups better, if recorders can put down ideas fast enough. A large number divided into smaller groups may get together later to combine their ideas. Twelve in a group may be a good number.

Evaluating and weighing of ideas come after brain-storming by different persons or the participants. A good leader encourages ideas, but does not mastermind or 'expert' the meeting.

How does the teacher know that her communication has been effective ? Only by letting the pupils discuss, raise questions and answer questions pertaining to the message communicated. The following evidences will indicate the effectiveness of teaching :

1. The receivers (pupils) respond through a volley of questions. A good teacher is willing to answer the questions.
2. The pupils answer adequately the questions raised by the teacher after the lesson.
3. The pupils perform well in tests
4. The facial expressions of pupils are cheerful, indicating that they comprehend the lesson.
5. The responses of the pupils outside the class are encouraging: such as doing home work, talking to friends about the lesson and wanting to read more.
6. The behaviour of the pupils in their homes and community is satisfactory, reinforcing the lessons learned.

ASSIGNMENTS

1. *List several situations in the area of Home Management which lend themselves to role-playing.*
2. *Organise an exhibition to show the need for planning budget and evaluate it.*
3. *List topics in Home Science suitable for (a) Seminar, (b) Panel Discussion, and (c) Forum.*
4. *Collect the teaching aids available in your locality to teach Home Science.*
5. *Develop criteria for evaluating the teaching aids and evaluate them.*

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CHAPTER XI

Techniques (Methods) of Teaching

> *Teaching is the most difficult of all arts and the profoundest of all sciences. In its absolute perfection, it would involve a complete knowledge of the whole being to be taught and of the precise manner in which every possible application would affect it.*
>
> —HORACE MANN

METHODS OF TEACHING are ways of organising the learning experiences during a class period. Effective techniques of teaching are based on the use of relevant teaching devices and Audio-Visual aids and 'fixing' devices like questioning, recapitulation and assignments which help in fixing the information or skills in the learner. The type of methods employed will depend upon the learner, learning situation, facilities available and the nature of the information to be communicated.

Commenting on the desirable methods of teaching, the Secondary Education Commission(1) observed : "A method is not merely a device adopted for communicating certain items of information to pupils and exclusively the concern of the teacher, who is supposed to be at the 'giving end'. Any method, good or bad, links up the teacher and his pupils into an organic relationship with constant mutual interaction : it reacts not only on the 'mind' of the pupils but also on their entire personality, their standards of work and judgement, their intellectual and emotional equipment, their attitudes and values. Good methods which are psychologically and socially sound may raise the whole quality of their life while bad methods may debase it. Therefore in the choice and assessment of methods, teachers must always take into consideration their end-products, namely, the attitudes and values inculcated in pupils consciously or unconsciously".

The approaches and procedures discussed in the preceding chapter also constitute valuable methods of teaching. In addition, the several methods available for teaching pupils in the secondary schools are :

A. Lecture
B. Demonstration
C. Laboratory
D. Project

E. Problem-solving
F. Home activity
G. Utilising festivals
H. Folk lore and dances
I. Team-teaching
J. Programmed instruction
K. Assignment and home work.

A. LECTURE METHOD

'Lecture' or 'telling' is the most commonly used method in teaching. Often it forms the soul and sole process of teaching. To many teachers and learners, lecturing means efficiency in delivering information without interruption and without referring to any text or written material. Effectiveness in lecturing is evaluated from the quantum of information thus relayed and not necessarily by its effect on the learner.

Lecture as a method of communication is deeply ingrained in the fabric of our educational system, being the most economical way of getting a vast amount of information across to a large group within the least time. Even though the coverage of material by the lecture method is more within a given duration than that by the laboratory and activity approaches, the percentage of retention falls with the passage of time. Therefore, it is desirable to use the lecture method, in conjunction with some other method(s) such as display of visual aids, use of audio techniques, demonstration and role-playing. While using the lecture method, the teacher should give the recognition to the need for eliciting pupils' participation through discussions and responses to questions Socrates distrusted the lecture method on the ground that the lecturer puts ready-made ideas into the minds of the pupils, without leading them to discover their potentials. To Socrates, the 'question' was a means of inducing thinking, besides a means of testing factual information. The Socratic method leads the pupil from the "unconscious ignorance" to "conscious ignorance" through an ironic or destructive stage of questioning and then on to "truth" by the constructive stage of further questioning. The essential steps involved in the lecture method are : (1) lecture preparation and (2) lecture presentation.

1. *Lecture preparation*

From the syllabus prescribed, the teacher can decide upon the units or topics which could be covered through lectures and estimate the time required for them, based on the stage of learning of the pupils and their interests. Recognizing the level of understanding of the learners, the teaching points and notes should be prepared in advance with up-todateness and appropriateness with due consideration for the important points to be emphasised, the other methods of teaching to be integrated, the teaching aids to be used and the manner in which pupils should be involved in discussions and other procedures.

Gathering information alone will not be adequate. Organizing it in proper sequence is important The teacher has to 'tailor' her lecture, 'ironing out' vague ideas. Uninteresting or irrelevant matter and hurrying through the lesson will negate learning.

The pupils need to be organized and prepared through hand-outs, announcements and similar steps, to receive the subject-matter in the lecture All the required arrangements for any demonstration or film-show, should be got ready in advance without spending class time for that purpose

2 *Lecture presentation*

Good lecture is amplified conversation The teacher should talk to the pupils and not to herself, with proper articulation, pronounciation of words and tempo. She should not swallow words, but stress the points clearly. She should create a pleasant and social atmosphere in the class-room to win the attention, and sustain the concentration of the learners. Addressing them by their names and distributing the questions to different pupils will help in making them alert and attentive. Discipline should thus be maintained by attending to each pupil to the extent possible.

Reading out the lesson to the class in the form of dictation of notes should be eliminated. The subject-matter should be presented with an arresting introduction by bringing out its relation to previous knowledge. The topic should be made clear at the beginning itself so that the thoughts of the learners could travel along with those of the teacher. The pupils can then remember the points recognizing their relevancy and appropriateness to the topic.

Pupils should be motivated to develop interest in the lesson, by kindling their creative thinking. Clarity and coherence of thought should be evident in all the explanations given. Combining other methods of teaching along with lecture and stressing the definitions, fundamental principles and other important points will help to sustain the interests of pupils and make teaching effective and purposeful. Involving the pupils in the class-room discussions, demonstrations or other activities gives them recognition. Frequent checking of the learning that is taking place during the class-period is essential since, proceeding further without making the previous point clear will be of no use.

B. DEMONSTRATION

The demonstration method, alone or with lecture, is used widely to teach different aspects of Home Science. Demonstration shows how a process is carried out or an article is made or how some steps are not to be taken. For example, a teacher may demonstrate a practical lesson on preparation of an infant food formula, drafting a blouse pattern, ironing a garment or an artistic room arrangement.

A DEMONSTRATION LESSON IN WHICH THE TEACHER POINTS OUT THE SCRAPPING OUT THE SKIN OF THE VEGETABLES

An old Chinese proverb says, "One picture is worth 1000 words" —A well given demonstration is worth much more, for it is an action-picture. Demonstration is often the only possible method, when there are no special facilities for teaching the practical aspects of Home Science to a large number of pupils. Demonstration has been proved as the most successful technique for teaching adults also. For teaching skills and carrying out activities scientifically demonstrations are helpful. For example, pupils will understand the operation of a sewing machine well when the teacher demonstrates the methods of handling it. In areas where an age-old custom needs to be changed such as adoption of the absorption method of cooking rice, or washing clothes using a wash board, demonstration of the new method is indispensable. Mere talking about the change required will not carry conviction. If pupils can see for themselves that the new method is better than the old one, they will begin to change their ways of living. Demonstrations are effective in teaching practical topics such as household care, cleaning, making garments, food preparations, food preservation, extending hospitality and care of the baby.

Demonstration is an action-cum-illustrated lecture, wherein the teacher brings out the relationship between the different steps of the subject-matter taught using appropriate materials and articles *Lecture demonstration* method is valuable to teach the different steps, processes or procedures involved in a piece of practical work or in handling appliances and machines. The teacher gives the explanation and demonstration simultaneously.

Demonstrations help to :

1. Serve as model laboratory work.
2 Make the pupils familiar with the nature and use of the apparatus.
3. Utilise teacher's time in observing the pupils while they do their experiments, and
4. Stimulate further learning.

Requirements for a successful demonstration

Demonstration may be long or short. They may be given by the teachers, pupils or both. The requirements for a successful demonstration are :

1 Pleasing personal appearance of the demonstrator.
2. Knowledge and accuracy of information
3. Equipment — Careful selection and arrangement of the required equipment and teaching aids.
4. Comfortable seating arrangements for pupils so that every one can see.
5. Planning all the details.
6. Thorough preparation.
7. Presentation — good choice of words and clarity in the points made.
8. Pupils' responses, and
9. Evaluation and follow-up.

1. *The demonstrator*

The demonstrator is the centre of interest in the demonstration method, since she performs the experiments to illustrate the steps, verify facts and principles. She must be appropriately dressed, She must have a well modulated voice which can be heard from all sides and even at the last row. Her vocabulary and grammar must be correct. She should be relaxed, confident and friendly while demonstrating Her enthusiasm and vitality must be infective. When she turns her back to go to the blackboard to illustrate a point, she should stop talking.

2. *Knowledge*

The demonstrator must have full information on the subject of the demonstration and how to present it. Only then, she will have self confidence.

3. *Equipment*

Equipment plays an important role in demonstration. A table may be set up in the laboratory or classroom at correct working height for demonstration. Or special demonstration tables can be designed, equipped and fitted with accessories such as shelves, drawers, storage cupboards, sinks or basins for washing. A mirror placed above the demonstration table will facilitate the audience following the activities of the demonstrator.

The correct working height for the demonstration table is 75 cm or 30 inches. If the height of the demonstration table is low, bricks, stones or wooden blocks can be placed under the legs to raise the table to sufficient height. If the demonstration table is too high for the demonstrator, a plank can be provided for the demonstrator to stand, at the same time enabling her to move freely during the demonstration. An area around 150-250 cm × 50 cm will be required for equipping a demonstration table

The very best equipment must be used to create interest and establish connections. They must be collected at the preliminary planning stage, assembled, neatly arranged and kept ready for the demonstration. In demonstration and other methods, the teacher may have to improvise equipment and facilities.

4. *Comfortable seating arrangements*

With seating arrangements conducive to adequate visibility as in a gallery or amphitheatre, the pupils should sit comfortably and listen, observe and take notes.

5. *Planning*

Detailed planning is necessary prior to the demonstration. How to conduct the demonstration, how to start, proceed and finish must be planned well in advance. Several points need to be remembered in this context. They are:

(a) Know the standard of the pupils.

(b) Plan the procedures to be used to manage the time (period) available effectively.

  (i) Prepare an outline — Think of ways to make pupils want to learn the new practices.

  (ii) Select the required equipment and supplies of the best quality which the pupils can get easily. Collect equipment. Plan how equipment is to be used step-by-step.

  (iii) Practise — Practise what to say and what and how to do, to keep the demonstration simple, to include every step needed, to have equipment where you want it and to know that the demonstration will move smoothly.

  (iv) Plan visual aids — Decide what visual aids will make the demonstration clear Plan and decide who will make the aids and when they should be ready. Decide where aids should be placed for effective use.

  (v) Plan for the assistant's help, if available.

When the demonstration is carried out with ease, skill and confidence, pupils will believe that the steps demonstrated are easy and can be repeated by them.

6. *Preparation*

(a) Arrange all the required materials to be accessible readily.

(b) Display effectively the equipment to be used.

(c) Check seating, lighting and other arrangements.

(d) Rehearse the procedures to feel confident.

(e) Ensure reproducibility of the product to be demonstrated.

7. *Presentation*

The following are the steps in the presentation:

(a) Introduce the topic. Introduction is the stimulation stage to get attention and to prepare the pupils to be favourably disposed. At this stage, the purpose and idea of the demonstration are given and important relationships discussed.

(b) Present the subject-matter interestingly with clarity.

  (i) Emphasize key points — put on the blackboard the three, four or five main points of demonstration Words used must be understood by all the pupils throughout.

  (ii) Emphasize places where mistakes are likely to be made.

(iii) Keep to the main idea — postpone answers to unrelated or difficult questions.

(iv) "Do" and "say". Work while talking and talk while working, but keep remarks to minimum.

(v) Have a neat setting — background or table.

(vi) Make it easy for pupils to see and hear.

(vii) Have pupils seated or standing so that they can see the demonstration easily. Ensure enough light on work so that pupils can see easily — (pupils should not face the light). "If they cannot see, they cannot learn". See that the working space is clear and in the view of pupils. Show materials in large size. If they are too small to see, draw a picture or pass copies of diagram or divide the class into small groups. Make good use of appropriate visual aids, large enough to be seen by all and where all can see easily.

(c) Demonstrate important relationships.

(d) Move ahead:

(i) Ensure that the demonstration is steadily moving along — neither in a hurry nor too slow.

(ii) Cover the points one by one completely, with no gap between the information and the demonstration. The demonstrator should explain every step and answer all the questions then and there, as the work progresses.

(e) Keep pupils comfortable throughout. They must be at ease with the teacher and the setting.

8. *The pupils' response*

The pupils must feel comfortable and be in a receptive mood throughout the demonstration. The teacher must stimulate them by her introduction. The room in which the demonstration is given must be well-lighted and not stuffy Since even with the best possible arrangements, only a small group of pupils seated in the front can follow the demonstration, writing the major steps on a blackboard, using mimeographed instruction sheets or a flannelgraph will help pupils follow the procedures. The distance from the last seat to the blackboard should not exceed 8 meters (27 ft.).

If pupils can perform the steps involved in a particular practical item simultaneously, success is ensured. Then it will be necessary to have the same number of the various types of equipment as there are pupils in a practical class.

Questioning by the pupils must be welcomed and permitted throughout the demonstration and at the end of the demonstration. Answers given to the question should be direct and clear. If the pupils appear worried or confused, as can be seen from the expression on their faces, the teacher should stop and dispel their doubts and fears. If the teacher cannot answer all the questions raised by the pupils, she must accept the fact and assure them that she would give the answer in the next class.

9. *Evaluation and follow-up testing the end-product*

Display and testing of the end-product are the proofs of the efficiency of the demonstration. The display should be neat and relevant. Pupils must be helped to evaluate the end-product.

Review key points. Stimulate and guide critical analysis and let pupils display, compare, contrast and evaluate the end-product. Emphasize major ideas. Encourage discussion.

Lead to the desired goal.

Give out written materials — outline or bulletins.

Refer to books and bulletins for further study.

Follow-up with lecture and other methods.

The time allowed for questions, taking notes and for practice should be adequate.

Observe throughout the demonstration how it can be improved.

Note the types of questions pupils ask.

Ask later how many had tried the demonstrated practice.

Ask how many had showed the practice to others.

While the demonstration method gives pupils opportunity for practical experience in performing specific jobs, it has some limitations. It is expensive and consumes much time and energy of the demonstrator. It makes no provision for the different stages of development of the pupils in a class, since each is expected to work at the same speed. During adolescence, the degree of development differs among individuals. Initiative and creative ability are also curbed. Furthermore, the demonstrator may be tempted to lecture rather than demonstrate. Oral discussions may not be encouraged and practicals may not go hand-in-hand with demonstration work. These short-comings can be overcome by evaluating every demonstration and modifying the procedures. The evaluation sheet described below can help in the evaluation of demonstrations.

Evaluation Sheet

Name of the demonstrator
Aim of the demonstration:
Subject of demonstration·
Planned for........ ....minutes
Class: Date and time
Actually took...................minutes

	POINTS	
I. DEMONSTRATOR		*30*
Personal appearance, poise	10	
Self confidence and enthusiasm	7	
Audibility	5	
Voice: Pleasant and clear	5	
Good manners	3	
II. DEMONSTRATION		*45*
A *Subject matter* *20*		
Interesting	5	
Appropriate	5	
Accurate	5	
Novel and sustaining interest	5	
B. *Presentation* *25*		
Introduction — good	2	
Preparation — adequate	5	
Good techniques used in handling equipment	10	
Within time limit	2	
Orderly progress throughout	4	
Summarized well at the end	2	
III. RESULTS		*25*
Purpose accomplished	5	
Products creditable (acceptable)	5	
Attractively displayed	5	
Mistakes used to advantage	5	
Stimulated a desire to try the product/procedure	5	
Total ...		100

The following questions will also be helpful to evaluate the demonstration :

1. Was the purpose of the demonstration clear ?
2. Did the pupils want to learn the practice ?
3. Was the demonstration well planned ? Were the key points outlined ? Were equipment collected and supplied ahead of time ? Did the visual aids add to the demonstration ?
4. Did the demonstrator keep checking to see if pupils understood what she was doing and saying ?
5. Was the information accurate ?

6 Did the demonstrator review the key points ?
7. Did the pupils ask questions ?
8. Did their questions and discussion show that they would try the practice demonstrated ? Did they show interest in more information about the subject ?
9 Will the pupils show what they learned to others ?
" If the pupil has not learned, the teacher has not taught ".

An example for a demonstration

Demonstration: Bathing a two month old baby.

Articles necessary

Two buckets
Mug
Two towels
Soap
Basin
Oil
Powder
Cotton (or an old clean rag)

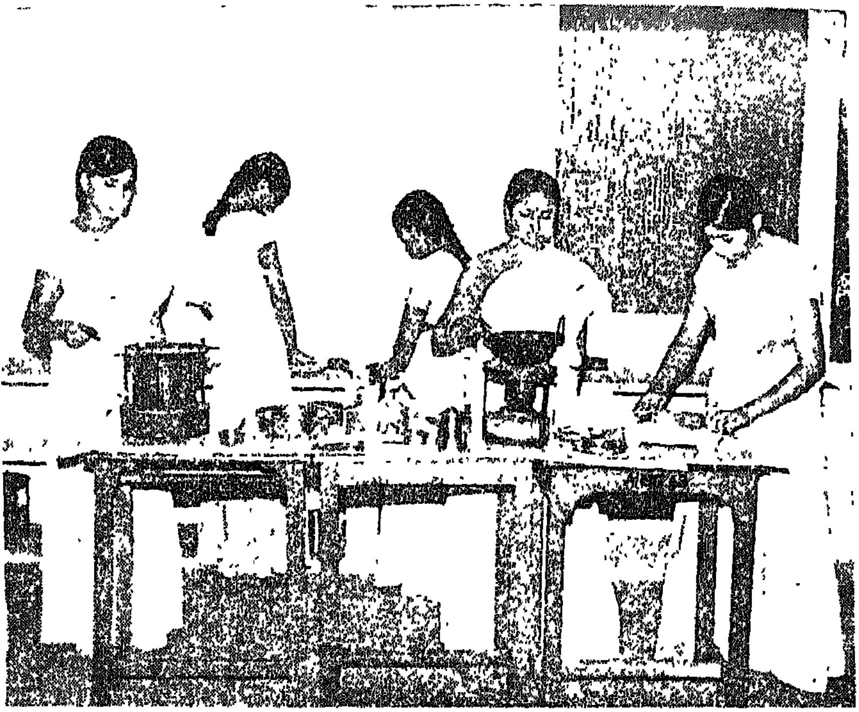
Show

1. Smear oil on the body of the baby and let him lie on a towel and kick well.
2. Get ready luke-warm water in a basin.
3. Slip the baby gently into the water holding his head above the water, supporting the neck.
4. Wet the hair, rub hair and soap gently and thoroughly.
5. Gently pour water and rinse the hair.
6. Wash the body, first the back and then the front, with plenty of water and wash off soap and dirt.
7. Wipe the body with towel to remove moisture and powder well Clean the ear and nose.
8. Put clean clothes on.

Bath time should be an enjoyable time, both for mother and baby. Have everything ready in time. After the bath, give baby food. The baby will sleep soundly after such a bath and feed.

(C) LABORATORY METHOD

Pupils learn by doing. The laboratory method helps them to ' learn by doing '. Therefore experience in the laboratory is an important part of pupil's total experience. It is the best method for providing pupils a clear understanding of any process. Laboratory experience under the supervision of the teacher provides the first step in the development of manipulative and managerial skills. Personal involvement in experimentation promotes development of a spirit of inquiry, capacity for reasoning, acquisition of the needed information and objectivity in observation. It is often necessary and desirable to have two consecutive periods together for laboratory exercise.



PUPILS AT WORK IN THE HOME SCIENCE LABORATORY

The laboratory method is:

1. Experimental
2. Observational
3. Productive

1. *Experimental*

Experiences help to explain, illustrate or prove a principle. For example, examining the behaviour of protein rich-foods on heating; washing woollen clothes and developing the blue print of a house-plan are experiences which are experimental in nature.

2. *Observational*

Examples for the observational type of experiences are : observations on child behaviour to develop ability to recognise characteristics of children, or on different types of Rangoli (Kolam) to discern decorative patterns and draw conclusions.

3. *Productive*

Construction of a frock for an infant, or preparation of tomato chutney or making a bag out of discarded gunny are examples of experiences which yield productive results.

In all these three types of the laboratory methods the lesson has three phases.

1. A planning phase
2. A doing phase, and
3. A summarization and evaluation phase.

1. *Planning:* In the planning period, pupils and teacher together develop the plans and prepare themselves for the whole experience. They set the goals, clarify the plan, outline the procedures to be followed and prepare for the discussion to follow the work period.

The teacher gives the introduction for the practical work with due coordination between the theoretical aspects taught, and the purpose of the experiment or laboratory session. Pupils are enlightened on how to keep a faithful record of what they do and observe. They are enthused to work independently and to discover facts for themselves. For these to be effective, the teacher should have done adequate planning in advance. The experiments should have been planned and graded according to the age level and abilities of the pupils. The necessary preparatory work should have been completed and checked the day before the practical work is to be carried out.

While individual work is to be preferred to group work, if the equipment and accommodation are not adequate, group work needs to be adopted. Pupils may choose their fellow workers for practical work, or the teacher may form groups according to certain criteria-height, socio-economic distribution, vegetarian—non-vegetarian and such like.(2)

There should be a place for every article in the laboratory. The important apparatus should be placed at convenient reach of pupils, who may be organised to assist in turns. Such arrangement will give pupils opportunity for handling and manipulating various apparatus. A first-aid kit must be available in the laboratory for use in emergencies.

2. *Doing*· During the ' doing ' or work period, experimentation,

production and observation are carried out by the pupils, following the rules displayed both outside and inside the laboratory. The pupils are also given specific and clear instructions before they start the practical work, through laboratory manuals, instruction cards or oral directions and guided to follow them strictly. The teacher supervises individual and group work, which are being done according to the plans developed. She gives her assistance and attention first to those who need them most, she is alert to all that is going on in the laboratory. This is a period for individual teaching and for developing good working standards. Therefore, the teacher should bestow great care to watch the posture of pupils while working, the methods they use, orderliness in work, cleanliness of work-spaces, sanitary practices and safety.

The pupils should be engaged in doing the allotted work in the laboratory without disturbance, confusion or noise. They should maintain a record book in which the experiment is described and observations recorded, following a definite style of writing.

3 *Evaluating*· During the evaluation period, products and methods of work are evaluated by pupils and the teacher. The accomplishments are summarised and judged in the class and discussed.

The pupils display the products or results and evaluate them with the help of a score card or check list developed for the purpose. Principles are discussed and clarified in the light of the experiences in 'doing'.

Evidence of a successful laboratory lesson are revealed by the following. Pupils:

(a) progress smoothly during the activity period.
(b) work independently and co-operatively.
(c) work without wasting time.
(d) share responsibility for routine work.
(e) maintain their interest and attention throughout, and
(f) evaluate the entire activity objectively.

Example for a laboratory lesson

Given below is an illustration of a successful laboratory class in Home Science.

Class — Ninth standard
Subject — Practical in food and nutrition
Unit — Balanced diets
Duration of the session — Two 45 minute periods
Number of pupils — 20

Topic for practical work — Preparing a balanced meal for a family of five.

Previous knowledge — Pupils have learned the essential nutrients. They have cooked food preparations such as rice, dhal and vegetables.

1. PLANNING

(a) *Advance planning by the teacher*

The teacher should:

List and purchase the ingredients required;

Collect the utensils and equipment;

Organise the supply table;

Prepare a poster on "The Basic Groups of Foods".

Prepare and mimeograph the recipes and directions.

Prepare and mimeograhph score cards for listing the foods consumed during the previous day (as shown on page 155) and for evaluating the balanced meal before and after preparing it.

Planning with the pupils

The teacher gives the definition of 'balanced' diets.

Teacher lets pupils observe and study the poster on the "Basic Groups of Foods". They become conscious of the foods to be included in the daily diet.

Pupils check the foods they had taken the previous day on the score card and calculate their scores.

Pupils see the ingredients placed on the supply table.

Pupils plan the menu for the meal according to the ingredients available—rice or atta, greens, dhal, tomatoes, beans and curds.

Pupils read the direction sheets and recipes for the food preparations and understand the quantities to be taken.

Teacher explains the methods of measuring ingredients, the use of the steam cooker and the tomato slicer.

Pupils are divided into groups and assigned the following preparations and activities:

Group 1 Rice or chapati
Group 2 Salad
Group 3 Greens and dhal
Group 4 Beans poriyal
Group 5 Cleaning and arranging the place for food service
Group 6 Serving food and cleaning up.

2. DOING PERIOD

The various groups are busy doing their assignments; the teacher assists the group preparing the rice on the use of the steam cooker The groups preparing the salad get help in handling the labour saving device—the slicer. The group preparing the place for serving food receives encouragement on their decoration.

Time is watched and kept. The meal is served All the pupils and teacher taste the food preparations and judge them The utensils are washed and kept away. The laboratory is cleaned.

3. SUMMARISING AND EVALUATION PERIOD

The criteria for evaluating the meal are:

(i) Taste and flavour of preparations
(ii) Appearance
(iii) Consistency and texture
(iv) Combinations
(v) Quantities cooked
(vi) Method of serving, and
(vii) Cleanliness of the kitchen before, during and after cooking.

What Did I Eat Yesterday

(PUPIL'S SCORE SHEET FOR PREVIOUS DAY'S FOOD INTAKE)

(Indicate the intakes with a √)

Name... ... .

Date.... ....

Foods taken	*Breakfast*	*Lunch*	*Dinner*	*Others*	*Scores*
Milk					
Egg or fish or meat					
Pulses and nuts					
Cereals					
Bread					
Potato or other starchy tubers					
Oil and fats					
Greens or raw vegetables					
Fruits					
Tea or coffee					

Total scores ....

Remarks ....

Maximum scores possible		*Points for a time*
4	Milk and milk products	1
2	Egg, fish or meat	1
3	Dhals and nuts	1
3	Rice or atta or bread	1
1	Potato	½
1	Oil and ghee	½
2	Greens or green or yellow vegetables	1
2	Other vegetables	1
2	Fruits	1
0	Coffee or tea	0
20		

Rating 17-20 points ... Well balanced
14-16 points ... Nearly balanced
Below 10 points ... Not balanced

(D) PROJECT METHOD

Education is preparation for healthy, happy and wholesome living. Are the laws of learning applied in daily life ? The project method answers this question. William Kilpatrik(3) defines project as a 'unit of wholehearted purposeful activity, proceeding in a social environment'.

The project method is based upon John Dewey's(3) pragmatic philosophy of experimentalism. Dewey's philosophy of pragmatism brought a new dynamism to education. It transformed the dull, monotonous and purposeless class-room teaching into one of vitality. John Dewey said that education should not only be for life, but through life. He was keenly aware of the gap between pupil's life in school and life in society. He insisted that in an efficient educational system, this gap should be bridged. The project method is an attempt to bring society into the school.

Stevenson(3) defines project as, "A problematic act carried to completion in its natural setting" Ballard(3) states that "project is a bit of real life that has been imported into the school". A project is thus related to real life, its problems and their solutions in social environment.

Types of projects

There are four types of projects (Kilpatrick)(3).

1. *The producer's type*

In the producer's type of projects the emphasis is on actual production or construction of material, object or article

2. *The consumer's type*

   The consumer's type of project consists of various experiences, such as reading and listening, evaluating food preparations, garments, accommodation, toys and such.

3. *The problem type*

   The problem type of project aims at solving problems involving the intellectual processes of the pupils. For example, determining the optimum temperature of oil for producing palatable pagoda, and

4. *The drill type*

   The drill type of project is directed towards attaining skills in activities such as learning vocabulary, sewing and kneading dough.

Principles underlying the project method

The principles governing the project method are that it is·
Purposeful,
Activity centred,
Centred around life situations,
Based on experience,
Based on pupils freedom for exploration, and
Utilitarian in objective.

Purpose

The project must be purposeful for the pupils. They must know why they are undertaking a particular project. Only then they will get satisfaction and incentive to work.

Activity

A child is active by nature The project method gives opportunities to the child to be active and to do things for himself. Through activity centred learning, the pupils think, plan and do things independently.

Reality· Life-centred

Education is preparation for life. Real life situations are created in the school through the project method. The pupils are provided with opportunities to exercise their talents in real situations.

Experience

Experience is a by-product of activity. In the project method, the child works alone or with a group, carries out his assignments and gains valuable social experiences in co-operation, character training and practical democracy.

Freedom

The project approach leaves the pupils to themselves What they do and how should they do are to be decided by themselves. Such freedom helps children to unfold and express themselves fully.

Utility

Knowledge should be useful and practical. The project method ensures the practical utility of the knowledge learned.

Steps in the project method

In the project method also pupils learn by doing. The teacher's job is to provide a situation which may give pupils a spontaneous urge to carry out the project according to their interests and attitudes. The project situations can be provided by conversation on different topics, discussions, pictures, buildings or sites, telling stories or taking children out on excursions and educational tours. There are many stages in the organisation and completion of projects Purposing, planning, executing and evaluating are the steps in the process.

Purposing

In this stage, the teacher inspires the pupils to select suitable projects, arising out of their needs, interests and aptitudes and clarify the purpose. The teacher should never force a project on the pupils. Well begun is half-done. The selection of a suitable project and setting the goal paves the way for success.

Planning

In the planning stage, decisions are made about the procedures and nature of the outcomes. Various means of attaining the goals are considered and compared. Finally a plan is decided upon and appropriate activities selected. Planning is flexible to allow modifications when necessary.

Executing

The execution of the plan consists of the learning activities involved in carrying out the plan. The learning outcomes are decided by the nature of the project. Pupils distribute the various duties and share the efforts, involving themselves deeply in the activities. At this stage the teacher's help is minimum. She sees that the pupils get all the necessary facilities for the execution of the project, *Evaluating*

Evaluating the outcomes of the projects and the whole set up, working in groups is very important from the point of view of developing desirable habits and making learning permanent. With the help of the teacher, pupils evaluate their own assignments and their total effect.

All subjects in the curricula do not lend themselves to be learned through projects. Soap making, paper making, kitchen garden, maintaining a beehive and setting up a museum are excellent projects. Excursions, the school magazine and arranging a meeting are also good projects to be tried.

The project method depends on the enthusiasm of the pupils and teachers for its success.

(E) PROBLEM-SOLVING METHOD

Teaching Home Science or any other science requires use of the scientific method. Any method of solving a problem scientifically, following appropriate steps logically is a scientific method. The scientific method involves thinking, reasoning, planning and execution. Achievement of certain abilities, skills and attitudes are the results. Viewed in this perspective, 'Problemsolving' is a scientific method.

Risk(4) explains problem-solving as a planned attack on a difficulty, perplexity or problem to find a satisfactory solution. Ross(5) interprets problem-solving as an educational device whereby the teacher and the pupils attempt in a conscious, planned and purposeful manner to arrive at an explanation or solution to some educationally significant difficulty.

A problem occurs in a situation in which a felt difficulty to act is realised. It is a difficulty that is clearly present and recognised. It may be mental difficulty or physical. It may involve manipulation of data. The distinguishing feature about a problem is that it impresses the pupil who meets it as needing a solution. He recognises it as a challenge(6).

Characteristics of a 'problem'

The problem to be solved arises out of a life or an educational situation. For the application of problem-solving as a method of teaching, the problem selected must be clear, definite, understandable, thought-provoking, interesting and suited to the age, needs and capability of the learners and the knowledge they already possess. It should have practical value, be capable of completion within the time limit set, without causing additional financial commitment to the problem-solver or to the institution. Above all, the problem should correlate with the curriculum.

Systematic approach to problem solving involves two important types of procedures, namely, inductive and deductive.

The inductive procedure

The inductive procedure demands the thinking process to move from the particular to the general. General conclusions are arrived at from concrete examples and generalisations from particular principles. Home Science poses many problems which may be put to inductive reasoning. An example for inductive problem solving is: vitamin C dissolves in water and is easily destroyed by heat. This leads to the generalisation that all foods rich in vitamin C, should be cooked in minimum water for the least amount of time.

The deductive procedure

In the deductive procedure, reflective thinking moves from the general point to the particular. For example, pupils find that foods have less vitamin C after cooking and explore the reasons for the loss. They arrive at the inference that heat and water had reduced vitamin C Thus the pupils have 'deduced' the particular principle from the generalised observation.

A class exercise may be turned into a problem when the problem demands an integration of the learnings, entire repertory of strategies and understandings. Exercises should follow real or hypothetical problems, to sharpen skills and to reinforce the processes used in the problems.

Methods in problem solving

Problem solving may be carried on by the Heuristic, enquiry or discovery approach.

'Heurism' derived from the Greek, 'Heurisken' means 'to find out'(7). Hence the Heuristic method is the method of discovery. It aims at making learners more observant, accurate, truthful, thoughtful and dexterous. Thus it lays the solid foundation for future self education and to encourage the spirit of inquiry and research

Problem solving involves scientific enquiry, which is a search for truth and knowledge. The emphasis in problem solving is one of search, rather than mere acquisition of knowledge. This scientific method is referred to as the discovery approach to teaching. It was spearheaded by Piaget in Switzerland and Bruner in Cambridge, Massachusetts.

Learning by discovery is experiencing immensely increased interest. Discovery is the recognition of a relationship between an idea and an observation or between two ideas or between two observations. Bruner, points out four advantages in learning by discovery: increase in intellectual potency, shift from extrinsic to intrinsic rewards, learning the heuristics of discovery and memory processing.

Steps to be followed in using the problem-solving method

The steps involved in using the problem solving method are:

1. Sensing or selecting the problem.
2. Defining (interpreting and delimiting the problem.)
3. Collecting (and evaluating) relevant data.
4. Formulating the tentative solutions.
5. Arriving at the final solution, and
6. Testing the validity of the good solution.

1. *Sensing or selecting the problem*

The teacher should guide the pupils in recognising the problem to be solved, by creating suitable situations to motivate the learners. She should help them to be alert to recognise the problems as and when they occur.

2. *Defining. (Interpreting and delimiting) the problem*

The problem sighted should be understood fully by the learners. The nature of the problem should suggest the requirements to solve it. The workability or the requirement of the problem should be limited in relation of the capability of the learners and the resources available.

Hullfish and Smith(8) suggest the following questions to be raised in defining the problem.

(a) Exactly what is the problem ? Can it be broken down into sub-problems ?

(b) Is this problem similar to what others in my past ?

(c) What is the fundamental likeness of this problem and the others ?

(d) What is the fundamental difference ?

(e) What does this difference entail—new methods ?

(f) Should I now redefine the problem ?

3. *Collecting (and evaluating) relevant data*

After defining and interpreting the problem to the pupils, they must be stimulated and helped to gather the relevant information which is basic to its solution. The teacher may suggest the sources to be tapped, the books to be referred to and the personnel to be consulted. The information collected should be evaluated for its relevancy to the problem and applicability.

4. Formulating the tentative solutions

Different solutions to the same problem may be studied in depth to decide upon the most appropriate solution and procedures. The pupils cannot rush to arrive at the solution. The inferences drawn must be considered and a tentative solution formulated.

5. Arriving at the final solution

The tentative solutions are pooled together and discussed. This phase of problem-solving technique requires a great amount of guidance and coordination from the teacher, so that pupils can select the correct solutions and arrive at suitable inferences.

6. Testing the validity of the solution finally arrived at

The validity of the solution, finally arrived at may be tested through the application of the hypothesis to new situations, further experimentation and investigation and gathering new data.

The teacher needs to motivate the learners to take up problem solving challenges by creating an atmosphere conducive to fact-finding. She should guide the pupils constructively throughout different stages of the problem solving venture.

Problem-solving versus project method

The difference between the project and problem solving methods is that problem solving requires a solution in thought, action or in both, while the project aims at the successful completion of an objective unit of work. Problem solving may be taken up as a project work, whereas a project need not always be a problem-solving enterprise.

Merits and limitations of problem-solving method

The problem solving method prepares the pupils to meet problems in life. By learning by doing, pupils develop initiative, thinking, reasoning, self-reliance and desirable work habits. The problem solving method brings the teacher into close contact with learners. As problem-solving requires a higher order of mental activity, pupils gain self discipline.

The main limitation in the application of the problem-solving method is when the teacher starts to assign the problem without leading the learner to choose the problem, then the interest of the pupils is killed. Another limitation is that it is highly time consuming for both the teacher and the learner and, therefore, cannot be used frequently. Often there is paucity of sources of references for the learners, if the problem-solving effort taken up becomes the only mental activity, the other aspects of learning get neglected. The teacher, therefore, needs to adopt problem-solving judiciously and scientifically to bring about, development of scientific attitudes in pupils, so that they will be equipped to apply scientific procedures in solving their daily problems.

(F) HOME ACTIVITY (EXPERIENCE) METHOD

One of the aims of the Home Science curriculum is to help girls and boys develop the competencies required to function as responsible members of the family. For the fulfilment of this purpose, *'home activities or experiences'* need to be provided. A *'home learning experience'* is a learning activity, short-term or long-term, to be carried out at home, or in an *'out of classroom'* setting. Home experience augments learning.

Responsibilities, relationships and activities which boys and girls carry out in family living are part of 'home experience'. School experiences cannot substitute home experiences, but pupils must be able to apply classroom knowledge to outside activities. There are two types of home experiences : Home practices and home projects.

1. *Home practice* is small in scope and may be part of a home task. It is often repeating a classroom practice such as preparing one dish for a meal to provide more skill.
2. *'Home project'* is a home experience complete in itself, affording opportunity for the development of and increase in abilities, including improved ability to work and live with people. it is a planned experience carried to completion.

Educational value of home activity or experience

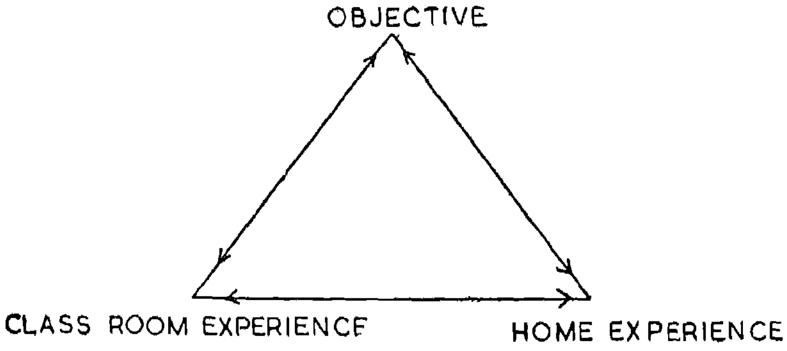
Home experience will be of great value to pupils if grown out of the problems encountered by them in their families. They help pupils to :

1. Develop ability to plan for what is to be accomplished.
2. Improve ability to work with people of different ages and backgrounds under different situations.
3. Improve attitudes towards home life and develop interest in it.
4. Enrich learning beyond recall, memory or mere knowledge.
5. Develop manipulative skills in some tasks.
6. Develop self-expression and independence.
7. Reduce friction between old and new practice in the family by sharing responsibilities, and
8. Interease interest in the community.

The attitude of the teacher towards home experience as a valuable part of learning will give importance to home activities. Home activities can be carried out within limits of time, ability and other resources of the pupil, family and the teacher. The teacher should plan and guide home activities with the co-operation of the parents. When the pupils and their parents look upon home-projects, as part of the Home Science course, a strong foundation for realistic learning is laid.

Home projects require much preparation ahead of time. Before introducing a home project for the first time, the teacher must meet the parents through home visits to find out what they think their child needs to know about equipment, money, time and facilities available. Pupils also need to discuss what they do at home and what they aspire to be able to do well at home and their limitation in time, and ability to do the home project successfully. Participation of the parents in planning the home experience will facilitate its execution without feeling disturbed.

Home learning experience has broad applications in the lives of the pupils, both in the immediate family household and the wider environment[9]. It helps to achieve learning objectives and should be integrated with classroom learning experience and activities as shown below.



The home experience may be for a short duration or for a longer period. It should not be confined to home projects or home practices. The teacher may draw illustrations from the home-experiences of pupils as to the principles which need to be understood, or she may stimulate and direct increased experiences in the home. Many kinds of learning can be accomplished through home experiences besides procedures, processes, or skills, such as knowledge from observation, testing hypothesis, ability to apply concepts or principles and ability to judge. A home activity, project or experience has the following aspects:

1. Purpose
2. Plan
3. Execution, and
4. Evaluation.

1 Purpose

Home project helps pupils to carry out some of their goals. They help to understand in class, activities which cannot be carried out fully in the class. For example, kitchen plans and step-saving aspects are studied as different items in meal preparation at school, whereas pupils can re-arrange the kitchen in their homes and understand step-saving. In guiding pupils in the selection of home-experiences, the teacher helps them to realize the potentials of the various home experiences to reach the goals, discuss with parents the project selected and how to fit it into the home situation. In the process of clarification of the goals and selection of the specific home experience, the teacher may have to hold personal conferences with the pupil once, twice or even three times, to follow his pattern of thinking, encourage definiteness in decision, locate difficulties, indicate possible procedures, suggest references that will stimulate reasoning and thus help each pupil choose an experience according to his needs and situations. In the light of such needs, the teacher and pupils can clarify the purposes for a home experience.

2. Plan

During the planning period, the teacher lets the pupils see all possibilities to carry out a project utilising their interests, discuss the responsibilities of pupils in their families and have them list activities which they now do at home, which they would like to learn in school to do better at home. Each pupil can then list the experiences which she would like to plan and carry out in her home. The plan must state what needs to be accomplished and how to carry it out. For example, the written plan for the construction of a 'choli' should envisage the various steps involved, including its appearance on wearer when completed, or to prepare a complete meal, market list, recipes, steps in preparation, food service and cleaning up should be written.

3. Execution

The plan is carried out and supervised by the teacher during scheduled conferences and home visits. The pupil will need advice constantly from the teacher, parents, relatives, neighbours and friends, to complete the task without discouragement or development of undesirable attitudes If the 'choli' does not fit, she will loose enthusiasm. In order to avoid such a result, advice at the appropriate time or stage will facilitate greatly the achievement of the goal. When the home experience is in operation, conference with teacher and group discussion in which pupils make reports on their progress will be helpful(10).

4. Evaluation

The pupil, teacher and parents will evaluate the outcomes through reports, exhibits, demonstrations or visits. A final conference is desirable when pupils can be helped to see all the learnings and values achieved. A record of such conferences and home visits will be helpful for planning in the future Brown(11) has given the following format for reporting home learning experiences.

Reporting home learning experiences

Statement of learning goals or objectives:

Plan

To learn this (or these) what I plan to do.
Detailed outline (analysis) of the work to be done.
Information I will need.
Where I can get the information.
Approximate cost.

Records

Time plan (when to begin, when to complete and/or when work will be done).
Records to keep progress in carrying out.
Changes made in the plan (If any, these can be marked on the plan itself).
Corrections in cost estimate.
Conferences with parents.
Conferences with teacher.
Conference with other persons qualified to help me.
Record of ideas I have learned.
Record of informational sources.

Evaluation

Plans for evaluating (daily, weekly, final)
Ideas I have learned.

Summarizing

What I think of what I did
What I learned best.
What I still need to work further to learn.

Decisions made about directing home learning experiences in teaching Home Science ought to be logically related to the goals and values of general education and be consistent with the laws of learning based on relevant facts.

An example of home learning experience integrated with classroom learning experience is : A class may study how to arrange equipment in the kitchen so that work can be done easily and quickly. Pupils may describe the arrangements in their home kitchens. They may draw plans of their kitchens and indicate the steps taken to prepare meals. The teacher is thus drawing examples out of home experiences and using real situations arising out of home experiences to give meaning to the discussion and study in the classroom. If the pupils will then go to their homes to study the arrangements of the utensils, and work-out an improved arrangement in co-operation with their mothers, home experience of a constructive nature has been stimulated and carried out.

Suggested home experiences in home science

Child development

Making toys or renovating toys for children in the home.
Taking complete care of sister or brother for two weeks after school.
Teaching sister to dress herself.
Teaching brother to read.

Human relationships

Reading to grand mother news every evening.
Making clothes for the poor.
Avoiding consciously quarrels in the home.

Foods and nutrition

Improving storage of food and equipment in the home.
Making mother a guest at a meal.
Using more milk in the meal.
Cooking vegetable in new ways.

Home management

Improving the kitchen arrangement.
Remodelling a furniture.
Decorating the home and school.
Taking charge of floor cleaning for a week in home.
Doing all the marketing for two weeks
Managing the home, while mother is away for two weeks.

Textiles and clothing

Constructing items of clothing.
Washing own clothing.

Health, home nursing, and first aid

Assembling first aid supplies for home.
Taking care of all injuries on brothers or sisters.
Making a back rest for an invalid.

Abilities, manipulative, managerial or creative, can be brought to the desired level only when further practice at home enlarges upon class work. However, home activities, if not adequately guided, may not result in learning. Consequently, when pupils undertake home experiences as an extension of their learning opportunities, attention must be given to the amount and kind of guidance they will receive. Continued practice of poor techniques, whether in cutting vegetables, keeping accounts, making beds, prevention of disease, caring for clothes, making purchases or any other task will result in chronic poor management. Assistance, guidance and encouragement are needed to ensure desirable results, both in the tasks done and in the attitudes developed through home experiences.

Home Science must recognize the contribution of home to education. It will be meaningful only if it contributes to better home and family living through pupils, teacher and parents working together. Home experiences thus offer an excellent opportunity for the teacher and parents work as a team.

(G) UTILISING FESTIVALS

Education needs to be in touch with the best aspects of our life. The finest of our culture should permiate into our schools from the homes and community, creating an intellectual atmosphere of good-will and affection. India abounds in festivals which can form an important medium for teaching culture. The celebrations of festivals are the meeting points of culture in the community. National rejoicings such as the Indian Independence day and Mahatma Gandhi's birthday and festivals of nature such as Harvest (Pongal, Onam or Sankranti) must be used for the purposes of education.

Secular education does not mean that our society and community are divorced from a religious basis. It means that Government and administration do not stand for any one religion. This toleration embodied in our Constitution should help schools and pupils to appreciate the best in all religions. While pupils should not be forced to join any particular form of worship, respect for the Founders of all religions, the great books and tenets followed by all Faiths should be cultivated. This means that teachers must have breadth of outlook to celebrate birthdays of Sri Krishna, Jesus Christ, the Buddha and Prophet Mohammed in the same school, not on ceremonial and ritual lines, but at the intellectual, educational and emotional levels. Apart from creating emotional integration of all the communities, celebration of the festivals can provide also a variety of activities which will develop different capacities in children. For example, Saraswathi Puja which is widely celebrated throughout the country, provides scope for a variety of aesthetic activities which may be used for educational purposes(12).

The Home Science teacher should study the implication of each festival, to understand their universal character. On Saraswathi Puja, books are collected in a place and worshipped. The instruments that men use ordinarily such as the knife, the scythe, the plough and the pen, old instruments of self-defence such as clubs and spears are also assembled and placed for worship. Children, rich and poor, bring some offerings to school from their homes. The rich may bring large quantities and costly items such as ghee, milk and sugar. The poor may bring smaller quantities and comparatively low cost foods such as puffed rice. All these are mixed and offered to the Goddess of learning, for in her presence size is unimportant, only devotion is of supreme importance. Thereafter the offerings are shared between all. In addition, kirtans, bhajans, dramas, dances and similar activities are organised. The dances, dramas, composition of poetry and other creative activities provide tremendous scope for self-expression. They impart training in community effort and bring out leadership. One pupil may sing well, another may dance, a third may draw, yet another may paint or act. One may not be able to do any of these, but may be a good organiser. But in all, the celebration provides opportunities in varying capacities, for growth and self-experience not in competition but in co-operation with each other.

To celebrate the Pongal (Sankranti) means to enjoy the harvest as well as to thank the Almighty for His blessings. The 'Thanks giving' is for supply of food for the year. Boys and girls can be taken on an excursion to the villages to share the national rejoicings in the rural communities. There is another aspect of this celebration to which the agriculturist attaches great importance, namely 'Mattu-Pongal', the offerings for the cattle. Cattle help men in the basic industry-agriculture. In addition to providing working power, they give him milk and also manure. On Pongal, the farmer acknowledges that help and expresses his gratitude to cattle. The cattle are washed, bathed, their horns painted to look beautiful and food offered. Thus the brotherhood that man sees in other creatures and the gratitude he expresses to them for providing him with companionship in work, are great(13).

There are other festivals which can be utilised for educational purposes. The teacher must broaden her views and sharpen her vision to find locate the festivals which have local significance and use them in her teaching. In this way she will not only make the class work interesting, but will succeed in being in close touch with the community.

Educationists in other countries are trying to invent such projects for the education of their children, but in India a variety of colourful festivals, is already present naturally. Sports, matches, singing and orchestra, literary and art competitions and many other activities can be included in the celebrations of these festivals with educational objectives according to the abilities of the children and the conditions of the surroundings.

(H) FOLKLORES AND DANCES

Several traditional methods can be used in secondary schools for teaching Home Science. Among these storytelling, folk-songs and dances are outstanding. Adolescent people have great fascination for folk-songs and dances which influence their appreciations and emotions, besides helping them to learn. The close association between the teacher and the taught in such activities gives opportunity for the teacher not only to observe the pupils in informal situations but also to influence them for harmonious working in teams. The Home Science teacher can use songs and dances for teaching desirable practices.

'Villupattu' is an age old tradition in Tamil Nadu. 'Villu' is a long bow decorated with flowers and bells. The participants beat the string of the bow and sing popular rural (folk) tunes detailing a story with dialogues. A central theme forms the focal point and the entire show is built around the theme. The head of the group starts out with the story or the theme and the rest agree, comment, question and sing together as and when the leader gives the signal. 'Kathakalatchabam' is an ancient art performed as a musical discourse carried out by one main performer with one or two aids or alone.

The teacher can use the ancient arts 'Villupattu' and 'Kathakalaktchabam' to teach several aspects of Home Science illustrated with wellknown characters in mythology. For example, Hanuman in Ramayana could be used to emphasise strength and vigour. He was able to do the Herculian task of digging out and carrying the sanjeevni mountain in one hand, because he had immense strength born out of strict dietary habits. Apart from mythology, classical literature with references on nutritious foods, clothing, child rearing, housing and family living can also be utilised.

'Poikhal Kudirai' (imitation horse) is another ancient and traditional entertainment. This is used especially during festivals In this folk-dance participants dressed like kings, queens or warriors ride an imitation horse and dance. They introduce the theme in their songs, explain it in detail and dance. Thus singing and dancing can become the media of education.

'Kummi' is a typical folk-dance of women in South India. With songs in tune with the theme and rhythm, the audience enjoy the singing of the women.

The Home Science teacher can employ these techniques to augment her teaching in an interesting and effective manner.

(I) TEAM TEACHING(14)

Team teaching is one of the organizations for improving the instructional programmes. The need for pre-organising the typical school programme arose out of the following factors.

(1) the individual needs of a pupil are not met by completely isolating him in one room with one teacher for his total programme,

(2) intellectual development limited by heterogeneous grouping for the entire curriculum, and

(3) at the same time, to be grouped according to intelligence for an entire day limits academic growth in some areas and the pupil's social development as well.

The team teachers are concerned with better grouping practices, curriculum revision, improved instructional techniques and more efficient use of time, energy and talents.

The teams vary in size, from 3 to 8 teachers who work with 75 to 250 children, with a teacher-pupil ratio of 1 to 25 or less. Team members have varying functions and responsibilities. Every team has one team leader, one or more co-operating teachers and one or more teacher aids. In addition, each team has part-time professional or non-professional help.

The amount and kind of help is determined by the size of the team and the particular needs of the team. All the members of the team should be willing to share in planning and actual teaching.

The team leader has administrative as well as supervisory functions. He (or she) is an able classroom teacher and has already made some contribution to school and community. The co-operating teachers have less administrative and clerical responsibilities than in the regular classroom. They spend their time on instruction concentrating on their speciality and they can be called to assist in other areas too.

The team teaching activities are co-operative planning, inter-change of teachers, combined meetings for lectures, film shows, projects and other joint activities for reinforcement of instruction. Scheduling might be arranged so that there are blocks of time and provision for integration and depth teaching. Larger classrooms, auditoriums, smaller assembly rooms and special new additions can be added or remodelled from the existing facilities, for large as well as small group meetings. Self-evaluation and team evaluation occur at regular intervals and in culminating activities.

The team-organisation approach to teaching emphasizes two factors, one is staff co-operation, involvement, collaboration, communication and interaction. The second is the role of the Head of the school, as the creator of an atmosphere in which responsible co-operation is possible.

J. PROGRAMMED INSTRUCTION

Programmed instruction is a new development which promises to increase the effectiveness of mass education. This is done by offering individual instruction to all pupils more effectively than a single teacher can do The uniqueness of programmed learning lies not in the device but in the scientific approach and also in its applicability to different levels and sectors of education.

Skinner(15) and his colleagues, at Harvard University, conducted research experiments to study the behaviour of pigeons. They managed to teach these docile, little creatures to do certain tricks and also to play a form of table tennis. The basic principles they used in teaching pigeons must be kept active: If rewarded, the moment a pigeon makes a right move, it learns a new one quickly; a complicated feat must be taught in one very small step at a time, with each step ahead being an extremely easy one.

Skinner once visited his daughter's fifth grade mathematics class and noticed that pupils' attention wandered away from the inefficient classroom instruction. He grew indignant at what he saw in the classroom and developed a fifth grade mathematics course based on the principles used in teaching pigeons and other small animals.

In programmed instruction, the subject-matter is broken down into a sequence of steps. The sequence and steps must be determined much more carefully and skillfully than is possible for an ordinary learner to do. The steps must be small enough for the learner to move from one to the next easily with a minimum of error. Mistakes are costly, they have to be unlearned. Trial and error learning must be reduced to a minimum The ideal programmes would result in no mistakes. Constant success reinforces past learning and motivates further effort.

Programmed instruction may take many forms depending upon the subject, and the objectives desired. One common form in academic subjects is to present certain carefully-worded data in a "Frame" or viewing space. Each Frame calls for a response(10).

In programmed teaching, a school subject could be broken into simple, easy progressive steps and presented as questions, the pupil must answer. The pupil would be kept active with the continuous answering of questions. The reward would be that of knowing at once if he was right or wrong, and if the subject was programmed in its logical order, he would rarely be wrong. The pupil would need to work alone, concentrating on the questions as they emerge, writing his own answers. A mechanical device or a 'teaching machine' which is a device which presents an exercise or a problem to a pupil induces him to respond and reveals to him whether or not his response is correct. Many machines require that incorrect responses be corrected before the pupil can continue. Most teaching machines use the tutorial or Socratic method. They ask questions, wait for answers and then let the pupil know whether or not he is right. They induce the pupil to think and do for himself. This is how the 'Teaching machine movement' came into existence. Instruction by "Teaching machines" is called programmed learning or self instruction. The material may be presented through any device — a machine or a book.

In general, programmed material consists of a series of small units called "Frame". Each Frame is based on knowledge already possessed by the pupil and each Frame adds a small increment to this knowledge. Each Frame contains one or more blanks to be filled in by the pupil in sentence — completion fashion. The blank in a Frame calls for a response that the pupil is able to make either because he learned how to make it in previous Frames or because it is made possible by the Frame currently confronting him. The pupil reads each Frame and then fills in the blanks. The type of reading required by a Frame ensures active and continuous manipulation of the ideas described in it. This type of reading reinforces learning in contrast to passive reading, without active manipulation of the ideas that make up the subject-matter.

The principles of programmed learning can be summarized thus:

Small steps
Active responding
Immediate confirmation
Reinforcement
Self-pacing

There are different styles or systems of programming. The '*linear*' programming, associated with the work of Skinner, is a single track programme because the pupil goes directly in a straight line through the material from beginning to end. The '*intrinsic*' programming associated with the work of Crowder(17) is a branching programme. It is a method of programming material that directs the erring pupil along certain corrective pathways before he is permitted to proceed to the next step in the programme. Introducing remedial or explanatory loops of review passage into a programme helps the learners who need them, while the swifter learners can skip the entire practice.

Research findings show that programmed instruction helps to accomplish learning at every level, from preschool to graduate, professional level. It is useful for slow learners as well as mature superior pupils. It can teach a variety of subject-matter, such as mathematics, statistics and languages and variety of skills, behaviour, rote learning, paired associated learning, application of formulas, formation of concepts and 'thoughtful' reading.

Developing a 'programme' is not easy. It requires not only planning and preparation but sound training. The nature of the programmed instructional material is such that it cannot be easily transplanted from one country to another.

One of the important factors in the use of programmed material is, that programmed material need not substitute the textbooks but rather certain parts of a text be programmed. The textbook could thus remain largely intact.

Teaching machines can never replace human teachers, however indispensable they may become. Factual learning which comprises the content of most programmes is only one means to the more important cognitive processes, associated with intuitive, judgemental and problem-solving behaviour.

(K) ASSIGNMENT AND HOME WORK

Assignment is that part of the instructional activity devoted to the recognition and acceptance of the next unit of learning by the pupil, and the processes by which that step is achieved effectively. Assignment helps in the planning and organising period when both the teacher and the pupils prepare for the next step. It is a co-operative experience in which the teacher is a sympathetic director or guide and pupils willing participants.

The assignment method is also based upon the principles of learning by doing. It provides opportunities to pupils to work independently in the class or laboratory and study by themselves. Thereby pupils are helped to develop the habit of extra-study. They learn how to consult references and collect data.

The assignment method is economical, because pupils in a class are given different assignments, depending upon their interests and progress. Each pupil works at his own speed The weak pupils do not stand in the way of bright pupils. They can refer difficult *experiences* to the teacher who is in a position to give individual attention.

The success of the assignment methods depends upon how well the assignment is drawn, and how well-equipped the library and laboratory are for assignments to be allotted to individual pupils. Some problems encountered in using the assignment method in the schools are: a heavy curriculum which cannot be finished within the limited time, dearth of books and references, non-availability of literature on all topics and the tendency for some pupils to copy from others.

Assignments should be challenging to enthuse pupils and enable them to explore and experiment. The problem of copying by the weak pupils can be eliminated and solved by asking oral questions and requiring of them to write short answers at times in the class and to know whether or not a particular concept or principle had been understood.

Assignment as a technique of teaching, is yet to be recognised in education. The significance of assignment is based on the fact that the desire to learn is more important than teaching. It is pupils' attitude towards learning that matters, and not the courses of instructions, however well organised they may be. In the words of Douglass and Hubert(18), "The assignment represents one of the most important phases of teaching". If good assignments are prescribed, pupils can and will study independently with success; but with poor assignments they will fail to profit.

Assignments rouse children's interest, stimulate their thinking, elicit their co-operation, encourage initiative, clear up misunderstandings, develop insight and strengthen morale. They help pupils to outline the work to be undertaken in the future with new and wider avenues and to discover facts of Home Science. Assignments thus supplement class-room teaching. They provide the teacher opportunity to augment learning through extra study. Assignments are of two types:

1. Home assignments
2. School assignments

Home assignment includes writing of answers to questions assigned by the teacher. School assignment is performing experiments in the laboratory and answering questions put forth by the teacher in the class. According to Yoakam(10), assignments may be of the old type or the new type Those assignments which have been long in use, such as prescribing the number of pages, paragraphs, topics, themes, exercises, questions and experiments are of the old type. In contrast the new type of assignment includes the project activity and problem. The new type is the outcome of the movement for directed learning or directed study.

A good assignment must be related to the topics learned at school. It should be brief, clear in purpose and flexible. It should aim at realising the goals, prescribed in such a way that stimulates reflective, thinking and gives freedom to pupils to discover facts for themselves appealing to the curiosity of the pupils, thought-provoking and challenging and suitable to the age, intelligence and abilities of pupils.

Steps in assignments

The first step is to analyse the prescribed course and allot suitable assignments within the time at disposal. With the calendar and course requirements, the teacher should find out the total number of assignments which could be accomplished within the working days in a year by a paricular class. The next step is to list the assignments and lay down the objectives for each assignment, with the co-operation of the pupils and directs them in the following stages.

1. Reference to previous experience

If for example, the previous lesson was 'planning the house', references should be given for previous lesson, to motivate and prepare the pupils for doing worthwhile assignments. The assignment could have been on a study of different blue-prints. While giving such references for the assignment, the teacher should see that the books suggested are within the comprehensive ability of the pupils.

2. Discussion

The teacher can organise a detailed discussion on the topic. Various proposals for the execution of the assignment would be put forth by pupils. The teacher should guide the discussion indicating the time allotted to various parts of an assignment.

3. Explanations and clearing difficulties

Any doubts and difficulties regarding the assignment will be cleared by the teacher.

4. Distribution of tasks

Suggested activities like collection of pictures, making models, writing essays will be distributed to the pupils either individually or in groups. When assignments are part of class work, the teacher gives on the spot supervision.

5. Starting the activity

Pupils take up the assignment as a new project.

6. Evaluation

Assignments should be evaluated by the teacher and pupils for positive results and further motivation.

Home work

Home work is independent work which the pupils do at home, to supplement the instruction received at school, away from the atmosphere of the class room, in the midst of home surroundings. As a practical teaching device, home work is a step towards self-education. It enables the pupil to use his own resources and work without supervision.

Home work facilitates formation of habits, of indpendent effort, self-study and work habits. It accelerates the advance of pupils in their studies and gives opportunity to teachers for securing more effective co-operation from parents in the education of their children.

In order that home work may be effective, it should be graded. The nature and amount of home work must be determined by the pupils' capacity and their home conditions. Home work should never be considered as a punishment. All the subjects in the curriculum must get due share of home work.

ASSIGNMENTS

1. *Analyse the child development part of the Home Science curriculum indicating the methods appropriate to teach the different topics.*
2. *The class can be divided into small groups, each group taking an area of the home-making programme and giving examples of demonstrations that might be used effectively.*

3. *List the 'Home activities' possible for teaching nutrition.*
4. *Suggest the suitable topics in Home Science syllabus which may yield for teaching through project method.*
5. *Let the class be divided into four groups and let each group prepare a series of 'Frames' for programmed instruction in Home Management, Foods and Nutrition, Child Development and Textile and Clothing.*

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CHAPTER VII

Planning Lessons

> *A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame.*
>
> —Rabindranath Tagore

Intelligent and wise planning of every lesson in advance and visualising the entire teaching-learning situation in the classroom are the keys to success. A good lawyer spends several hours in preparing his case before he enters the court-room. A good surgeon checks all relevant data before performing an operation. Likewise, a good teacher should plan carefully class-room activities in order that she can reach her educational goals directly and efficiently(1).

A plan is a blue print which helps in the efficient, economical and smooth conduct of any activity. To plan is to act with a purpose. The major concern of the teacher in imparting a lesson is disseminating knowledge with a view to help pupils comprehend and discover knowledge and develop insight and skills. Good teaching results when overall planning is prefaced with powerful motivational factors, flexible approach for improvisation and inspiration and efficient execution of the plan.

There are major phases in planning lessons. They are:

A. Plan for the whole course for the year or semester. This determines the general objectives, specific objectives and the courses to be taught.

B. Plan each major block or unit leading to the organisation of the selected courses into meaningful segments of activity and experience; and

C. Plan for the daily lessons.

Planning lessons is a continuous process. It begins with the goals to be achieved, with consideration for the time-block allowed. It moves through as a creatively conceived means of achieving the goals, and ends with valid plans for evaluating the efforts of both the teacher and the pupils. Each teacher establishes her own objectives with due consideration for the goals which are generally recognised as significant.

Lesson Plan

Bossing(2) defines 'lesson plan' as, "An organized statement of general and specific goals together with the specific means by which these goals are to be attained by the learner under the guidance of the teacher on a given day". Lesson plan is the teacher's mental and emotional visualization of the classroom experience as she designs it to occur. Lesson planning brings about:

1 Efficient organisation of the subject matter and activities within the limited time,
2. Realisation of goals and objectives in the presentation of the subject-matter, procedures, activities and the preparation of tests to evaluate progress,
3. Developing insights, interests, special abilities and desirable habits in pupils,
4. Conservation of time and other resources preventing waste.
5 Co-ordination in teaching-learning,
6 Steady progress in the teaching-learning process, keeping the teacher on the track, to work along the lines of the syllabus at desirable rate, and
7. Increase in the teacher's confidence and competences.

Characteristics of a good lesson plan

A good lesson plan is written, characterised by the following It has·

1 Clear statement of all the steps and the objectives to be achieved,
2. Allocation of time to each phase of the lesson,
3. Orderliness and flexibility.
4. Continuity of the old and new subject matter with up-to-date information.
5 Appropriate motivation and evaluation teachniques.
6. Illustrations and pivotal questions.
7 A variety of teaching and learning procedures.
8. Provision for individual differences.
9. Scope for extensive use of problem-solving as the basic developmental procedure; and
10. Good summary and assignment

Some limitations to be avoided in the lesson plan are:

1. Over-completeness or too many details or rigidity of the plan.
2. Disconnectedness.
3. Using the same techniques throughout, and
4. Too much dependence on book.

The pre-requisites for good lesson planning

The pre-requisites for good lesson planning are that the teacher possesses·

1. A basic understanding of the aims of education and mastery of his subject.
2. Knowledge of the standards and individuality of the pupils.
3. Competences in the methods and techniques of teaching; and
4. Ability to provide different types of activities during the presentation of the lesson.

The lesson plan should be used as a guide and not as a crutch. It should be a slave, and not the master of the teacher. In the process of teaching the lesson, the teacher should incidentally familiarise the pupils with the terms used and their definitions and specific language and style. She should help them to observe, develop and master the skills for faster reading rate, expression and analytical thinking.

Good teaching should result in pupils' developing, certain fundamental concepts and skills Concept formation is a developmental process. Through the various learning experiences provided in the classroom and outside, pupils acquire knowledge of facts, principles and terms. When they see relationships between the various components of a lesson and get an opportunity to apply the knowledge to a variety of situations, they develop concepts Whereas a fact, a principle, a piece of information or a definition can be given by the teacher and memorized by the pupils, a 'concept' cannot be given in that manner. It has to be developed by the pupils through a sequence of learning experiences.

The teacher needs to identify the major concepts and skills which she would like to develop through a particular lesson. In her effort to develop the concepts, she recognizes a number of instructional objectives (learning outcomes) and plans the teaching-learning situations, indicating the content, appropriate learning activities and the evaluation procedures. She should adopt different measures to assess the learning at various stages.

When the teacher understands through tests and questions how much the pupils have really learnt, she receives feed-back, which helps her to assess her teaching, modify and adapt the lesson plan and provide variety and interest.

Components of lesson plan

The components of a lesson plan are:

1. General and specific aims
2. Major concepts or ideas

3. Content (subject matter)
4. Learning experiences and evaluation
5. Recapitulation (Review)
6. Assignment

1. *General and specific aims*

The general aims of any Home Science lesson are:

(a) Meeting the needs of adolescents in personal living, social relationships, work relationships and economic relationships
(b) Providing information on fundamental principles and concepts useful in everyday living.
(c) Developing interest in knowing scientific information and in its application.
(d) Inculcating scientific attitude in thinking and in any performance; and
(e) Encouraging the pupils to develop aesthetic values.

The specific aims of a Home Science lesson are: To enable the pupils to

a. acquire knowledge and understanding towards conceptualisation,
b. obtain insights into problems of every day life and to learn to solve these problems,
c. develop skills in the performance of the right thing, at the right time, in the right way,
d. inculcate the habit of performing the activity using the proper technique,
e. learn the ways and means of developing efficiency; and
f. apply knowledge received.

2. *Major concepts and ideas*

The significant aspects of the content of a lesson are presented as major concepts and ideas. The major concepts and ideas would help in deciding the kind of learning experience that would make learning easier and more effective.

3. *Content (subject-matter)*

The subject-matter includes revision of previous knowledge and concept formation through sequential strategies, reiteration, comparisons and contrasts, demonstrations and applications.

4. *Learning experiences and evaluation*

Learning experiences should provide the pupils opportunities and facilities to participate in the teaching-learning activities within the classroom. Techniques should vary according to the age level, standard, size of the class, ability, aptitude and attitude of the pupils and the time available. Many techniques should be employed for teaching. Teaching should not be stereotyped. Teacher-pupil interaction should be encouraged. The pupils should be assessed through questioning or by giving activities in the class to know the learning that has taken place.

5. *Recapitulation*

Instruction for a class should be planned in such a way that there is time for the teacher at the end of the instruction, to check how far the pupils have correctly learned and retained the knowledge This will help the pupils to recall or recapitulate what has been learnt and also to know their capacity for learning. This may also enable the pupils to clear their doubts if any.

6. *Assignment*

In order to make the pupils to have a follow up of what is done in the class, activities or written work are assigned to pupils as, 'assignment' or 'home-work' or 'follow-up'. This is based on what has been learnt in the class as well as on the application of the learning that has taken place. Assignment will be valuable only when the work done by the pupils is evaluated by the teacher.

Examples for lesson plans in the different areas of Home Science—Child Development, Foods and Nutrition, Home Management and Textiles and Clothing are given in the following pages.

LESSON PLAN

Class : X Standard or XI Standard

Number of pupils : 30 to 40

Topic : Play activities of pre-school children.

General aims :

(1) To enable the pupils to recognise the need to give importance to the activities of children.

(2) To make them aware of the fact that play activities form the major aspect of a child's everyday life, and

(3) To highlight the role of play in the all round development of children.

Specific aims :

(1) To help pupils know how play activities help to develop finer muscular and motor co-ordination, social development, emotional maturity, intellectual curiosity and aesthetic appreciation in children.

(2) To help them know different types of play activities — indoor and out-door.

(3) To foster their abilities in the use of different play-tools or equipment.

Aids to be used :

Field trip to the nursery school.

Models and tools for different types of play activities.

Pictures and Flash cards on play activities.

Puppet show

Specification	*Content*	*Learning experiences and evaluation*	*Teaching aids*
1	2	3	4
		Introduction	
	Teacher motivates the pupils by asking a few questions about children and their play activities		
Pupils recall facts and answer		The teacher asks the following questions : Q : Do you have small children at home ? A : Yes. we have. Q : Have you observed them while playing ? A : Yes, we have Q : What are the different types of play that you have observed ? A : Playing with toys, sand, water and household materials and utensils. Q : How much time do the children spend in a particular play ? A : They play only for a little while	Black board
Pupils recall facts and answer the questions	Teacher brings the attention of the pupils to the play activities of nursery school children that they have observed.	Q Have you been to a nursery school ? A : Yes, we have been to. Q : What are the different play activities that you have observed there ? A : Playing in the slide, swing, climbing the ladder, sea-saw, playing with blocks, toys and sand.	Picture

1	2	3	4
		Presentation	
	Teacher brings out the importance of play for children.		
Pupils think about the importance of play		Q· Why do children play ? A : They play for pleasure. Q: What are the uses of play ? A: Play helps them to develop physically, emotionally and socially.	
	Teacher explains more elaborately the importance of play.		
Pupils acquire knowledge about the importance of play		Tr. Well-known experts in child development like Hurlock, Breckenridge and Vincent and Frank have listed the importance of play in the following aspects. 1. It promotes physical, motor and social development of the child. 2. It serves as an emotional outlet. 3. It is a medium for entertainment 4. It promotes intellectual curiosity and aesthetic appreciation in the child	Black board
	Teacher brings the attention of the pupils to the main types of play		
Pupils recall facts and answer		Q: Do Children play always in groups ? A : No, they don't, sometimes they play alone.	
	Teacher explains the main three categories of play namely solo play, parallel play and co-operative play.		

1	2	3	4
Pupils understand solo play		Teacher shows a flash card depicting children playing individually with or without making use of play equipment and songs — This is the ' solo play '.	Flash cards Black board
Pupils understand parallel play		Teacher shows a flash card depicting children at parallel play says : When children sit aside and play with their own equipment but observe the play of other children, it is called the ' parallel play '.	Flash card Black board
Pupils understand co-operative play		Teacher shows another flash card and says . when children interact with each other and share their equipment we call it co-operative play	Flash card Black board
	Teacher enables pupils to recognize the ' make-believe ' play	Q : Have you seen children imitating others while at play ? A : Yes, we have. Q · What are they ? A Acting as a flower seller, dhobi, cook, teacher, bathing the dolls, care of dolls, acting as domestic workers, as doctor, police man, post man and so on.	Black board
Pupils understand few facts about ' make-believe ' play		Teacher : The play in which children imitate the activities of the elders or the instances in Life is called as the ' make-believe ' play	Black board
	Teacher points out the two types of play equipment meant for out-door and in-door play		

1	2	3	4
Pupils list the various play equipment.		Q Can you name some of the play equipment ? A . Wooden toys, empty powder tins, soft toys, pull and push toys, sand pit. swing and sea-saw	Black board Pictures
Pupils understand more about out-door play equipment		Teacher shows few flannel cut outs of jungle gym, slide, sandpit ladder and asks· Q · For what types of play are these equipment useful ? A · These are useful for out-door play.	Toys Flannel cut-outs
Pupils understand more about indoor play equipment.		Then the teacher shows the flannel cut-outs of peg board. wooden blocks, puzzles, things for crayon drawing, push and pull toys and asks : Q : For what type of play do children use these equipment ? A : Children use these equipment for indoor play	
	Teacher makes the pupils know elaborately about the classification of play equipment in such a way that they are responsible for a particular development.		
Pupils acquire knowledge about the equipment that promote motor development		The teacher shows the picture of the play activities one by one. Cycling, Swing, Sliding on the board etc are helpful for motor and muscular co-ordination Cutting with scissors, crayoning, drawing, finger painting and threading the beads are some of the play activities that are useful for finer muscular and eye-hand co-ordination	Flash card Black board

1	2	3	4
Pupils acquire knowledge about the equipment that are useful for emotional out let.		Tr. What are the different play activities and equipment in which a child is able to express his emotions ? A : The different play activities which help in expressing their emotions are finger painting, beating on the peg board, playing in the sand pit, push and pull toys, tearing the paper. crayoning and so on.	Models
Pupils recall and answer		Q : How is the social growth influenced ? A · The social growth is influenced by many activities such as singing songs, telling stories, looking through books, finger painting and playing in the sand pit.	Flash cards Black board
Pupils listen carefully		The teacher explains that intellectual curiosity is increased with the help of reading books, clay work etc.	Black board
	Teacher demonstrates the activities that promote intellectual curiosity.		
Pupils participate in the demonstration		Teacher demonstrates some of the science experiments such as sprouting, how to get butter from milk etc. puzzles, and readiness activities Q : What are the different equipment that are promoting various development of pre-school children ? A	Demonstration
	Teacher emphasizes the need for paying attention to the selection of play equipment for the pre-schoolers.		

1	2	3	4
Pupils observe the puppet play.		Teacher enacts a puppet play, showing the advantages and disadvantages of certain types of play equipment. T. Q: Do you think that it is necessary to give attention for the selection of the equipment ? A: Yes — Because, pre-schoolers do not know about the proper use of pointed and steel toys and dangers of misusing them. So it is necessary to think more while we select the equipment.	Puppet play
Pupils learn few facts about the right type of equipment for play.		Q · What type of equipment should not be given to the pre-schoolers ? A: Glass toys and articles and equipment that have pointed ends should not be given to the children, as they may cause serious accidents or wounds to children Toys which lose their colour, when wet should not be used. The three dimensional pop-up books should not be kept in the book corner, because pre-schoolers do not know the use of such books.	
	Teacher asks a few questions from the portion taken.	**Review**	
Pupils recall and answer		Q · What are the values of play ? A: 1. To promote physical and motor development; 2. As an outlet for emotion; 3. To stimulate the intellectual curiosity, 4 To promote the social growth; and 5 It has the therapeutic value also. Q: What are the types of play ? A Solo play, parallel play and co-operative play.	

1	2	3	4
Pupils recall and answer		Q: What is meant by ' make-believe ' play ? A · Sometimes children imitate parents' and domestic peoples' activities like flower seller, bathing of the doll, washing the clothes and so on. This imitation is called ' make believe ' play. Q · How can we classify the equipment ? A: Indoor equipment and outdoor equipment	
Pupils recall and answer		Q: What are the different equipment that are useful in indoor and outdoor play ? A: *Indoor play* : Peg board, puzzles, books, crayon, push and pull toys etc *Outdoor play* · Sea-saw, sand pit, jungle gym, slide, ladder, swing etc. Q: What points should we consider while selecting the equipment for pre-schoolers ? A: We should be careful while selecting the equipment because, pre-schoolers do not know about the proper use of pointed and glass toys and dangers of misusing them. So it is necessary to think more while we select the equipment.	
	Teacher gives assignment as home work.	**Assignment** 1. Suggest some play activities for children of three years and five years. 2. Make some useful plaything from waste materials. For example, stitching a bag from old cloth, making soft toys from cotton etc.	

LESSON PLAN

Class : X Standard or XI Standard

Number of pupils : 30 to 40

Topic : Nutritional problems of Indian children

General aims :
1. To help pupils recognise the common nutritional problems in Indian Children; and
2. To help pupils understand the importance of nutrients for children's strength and health.

Specific aims :
1. To enable pupils know the effect of deficiency of each nutrient in childhood,
2. To enable the pupils know the measures that will help in preventing malnutrition in children, and
3. To help pupils spread knowledge of infants' nutrition.

Aids to be used : Pictures showing healthy and ill-nourished children.
Flip chart, poster and charts on nutritional deficiencies in children, blackboard.

Specification	*Content*	*Learning experience and evaluation*	*Teaching aids*
1	2	3	4
Pupils observe and answer	Teacher shows pictures of two children. In one picture the child is very thin, unhealthy and in the other the child is healthy and happy. Teacher elicits from the pupils the reason for the difference.	**Introduction** Teacher shows the picture of the thin child to the pupils and elicits information by putting questions : Q : How does this child look ? A : The child looks thin and sick He is not healthy. Q . What may be the reason ? A · Perhaps the child is not given enough food or the child is suffering from illness.	Picture
		Teacher shows the picture of the healthy child and asks . Q : How does this child look ? A : The child appears healthy and happy Q : What is necessary for the child to be healthy. A : Food and care Q · Do you remember what you have already studied about different nutrients and balanced diet ? A : Yes. We remember.	Picture
	Teacher mentions the purpose of the lesson of the day.	Tr : Today let us see how that knowledge can be applied to children in India. There are several nutritional problems among children. We have come to know about them through the studies conducted in different parts of our country.	
Pupils acquire knowledge about malnutrition	Teacher explains the meaning of malnutrition and the underlining causes for the prevalence of malnutrition among children in India.	**Presentation** Let us know the meaning of malnutrition to start with : Malnutrition occurs when the body is not getting the required amounts of the calories and nutrients in the proper proportions.	

1	2	3	4
	Teacher points out the reasons for the prevalence of malnutrition among children in our country.	There are different factors responsible for malnutrition among children in our country. They are: 1 Not consuming adequate foods 2. Low income and the low purchasing power of the people. 3 Ignorance of the people regarding the nutritional needs of children and the availability of nutritive foods. 4. Non-availability and high cost of foods essential for children. 5. Influence of certain harmful tradition habits, customs and beliefs regarding foods to be given or avoided in childhood. 6. Infections and infestations 7. Faulty and unhygienic feeding habits, and 8 Poor and unhygienic living and environmental conditions and tensions in households.	Black board
Pupils think and answer	Teacher focuses the attention of the pupils to the means to be found to combat malnutrition.	Tr · Suggest measures to overcome the causative factors listed. The suggestions may be summarised and presented as given below · 1 Producing of nutritionally valuable foods in adequate quantities 2 Motivating mothers to immunize their children and feed them adequatelv. 3. Imparting knowledge about good nutrition through all media of publicity to all. 4. Supply foods to children through organised programmes to selected group. 5 Improving and maintaining home and environmental hygiene and sanitation; and	Picture

1	2	3	4
		6. Making avaiable protected water, milk and other food supply.	Picture
Pupils observe and explain	Teacher draws the attention of the pupils to the major problems of malnutrition.	Teacher shows the picture of a child having 'Kwashiorkor' and describes : Tr . This child suffers from 'Kwashiorkor'. What is the cause for this ? A : Kwashiorkor is due to protein-calorie malnutrition (PCM) Tr : Protein-calorie malnutrition among children is the most important and widespread nutritional problem in India to-day Let us see the signs or symptoms of Kwashiorkor.	
Pupils observe, listen to and grasp the ideas	Teacher explains the signs of kwashiorkor with the help of pictures	1. General restlessness, oldema, flag hair (irregular and brown in colour) 2. The children are small for their age 3. Their muscles become limp and wasted, feet and leg swell from an accumulation of fluid 4. Digestive disorders, and 5 Children have looks of unhappiness and apathy and make few attempts to walk or move about.	Picture
Pupils compare the signs of kwashiorkor and marasmus and retain the facts	Teacher shows the picture of a child suffering from marasmus and explains the symptoms	Tr : Marasmus is also a form of deficiency of calorie and protein This picture reveals that a marasmic infant is : 1 Thin and puny with sunken eyes and hollow cheecks as signs of starvation. 2. Has gross wasting of muscles and tissues but no swelling.	Picture

1	2	3	4
Pupils observe and identify	Teacher indicates the causes for the protein calorie deficiency showing a flip chart.	Tr . Can you infer the causes for the efficiency of protein and calorie ? A · The causes are : 1 Prolonged nursing by mothers and late introduction of supplementary foods. 2. Inappropriate choice of supplementary foods. 3. Unhygienic feeding habits which predispose a child to diarrhoea. 4. Drastic medication and the withholding of foods in the cure of diarrhoea, and 5 Eating of rice mostly at the neglect of other food items	Flip chart
Pupils hear and recognize the results mentioned	Teacher emphasises the results of studies conducted in this area.	Available evidence indicates that severe degrees of PCM (Protein-calorie malnutrition) are seen among the rice eating parts of the country — that is, in South India, Parts of Maharashtra, Orissa and West Bengal. About a half of our 100 million children in the age group 1-6 suffer from PCM Studies show that children once suffered from severe PCM in their early childhood may suffer from permanent physical stunting It mainly affects the children and rarely the adults These findings warn us to take steps to prevent as well as to cure the PCM.	
Pupils think and answer	Teacher motivates the pupils to suggest measures for the prevention and the cure of PCM deficiency.	Tr : What steps may be taken ? A : 1. Increasing the production and consumption of protein rich foods like milk, eggs, and pulses. 2 Educating the mothers regarding the early introduction of supplementary foods based on the locally available protein rich foods	

1	2	3	4
		3. Using available vegetable protein foods like pulses and nuts effectively, and 4 Benefiting from the feeding programmes organised by the Government	
Pupils recall their previous knowledge on Vitamin A	Teacher shows a set of flash-cards, narrating a story which brings out the symptoms of deficiency of Vitamin A and helps the pupils to learn them.	Next to the PCM, Vitamin A deficiency is the most common problem among our children A . Can you recall the symptoms of deficiency of vitamin A ? A : Deficiency of Vitamin A results in · 1 Night blindness or inability to see in the dim light 2. Bitot spots 3. Keratomalacia 4. Xerophthalmia 5. Lowered resistance to infection, and 6. Toad skin.	Black board Pictures
	Teacher checks the information given by the pupils.	Q : What preventive steps can we take ? 1. Consuming daily butter, eggs, and fish if economic conditions permit. Or green leafy vegetables, carrots, papayas and mangoes 2. Taking Vitamin A, supplied through Public Health Programme or purchased.	
Pupils observe and explain	Teacher directs the attention of the pupils to the deficiency symptom 'Rickets' by showing a picture	Tr : Vitamin A may be stored in the body for a long time. Q · What do you see in this picture? A : We see knock knees or bow-legs of the child. This condition is 'Rickets' which occurs as a result of deficiency of Vitamin D, Calcium and Phosphorus	Picture

1	2	3	4
		Q . How do you safeguard children against becoming ricketic ?	
Pupils think and explain	Teacher allows the pupils to mention the means of preventing Rickets.	A : By taking daily eggs, milk and fish liver oil. Due to the rising prices of fat and oils, their consumption is reduced in quantity and hence there is possibility of their being deficient in the diet.	
Pupils recall and describe	Teacher indicates the symptoms of deficiency of B-complex vitamins and asks the pupils to explain the symptoms with the help of charts	You have studied about the symptoms of deficiency of B-complex vitamins. 1. The deficiency of thiamine results in beri-beri. 2. The deficiency of riboflavin results in angular-stomatitis — with lesions in the corners of the mouth. 3. The deficiency of niacin results in pellagra with signs of dermatitis, diarrhoea and mental changes. Q . What foods will help in preventing deficiencies of B complex vitamins ? A : Since the main cause for the deficiency is use of 1 Highly milled cereals, hand-pounded cereals may be used, and 2 Intake of whole grains, pulses, milk, meat and egg will help in preventing the deficiency.	Charts
Pupils recall and point out the facts	Teacher passes on to Nutritional anaemia checking the knowledge of the pupils on that aspect	Teacher asks the pupils whether they have heard the word ' anaemic ' A : Yes, when an individual is pale, he is referred to as ' anaemic '. Tr . What is the cause of anaemia ? A · Deficiency of iron and other facts results in anaemia.	

1	2	3	4
		Tr : About 10 per cent of all maternal deaths, 17 per cent of the birth of pre-mature infants and the low birth weight of our Indian children are attributed to anaemia.	
		Q : What measures will help in preventing anaemia ? A : 1. Inclusion of foods rich in iron like green leafy vegetables. 2. Supplementation with iron tablets and protein 3. Adequate prenatal care, and 4 Nutritional programmes to supply food for children.	Poster
		Review The deficiencies we have discussed so far form the major nutritional problems among children in India.	
Pupils recognise and answer	Teacher checks the pupils for the learning that has taken place.	Teacher shows the pictures revealing the deficiency of different nutrients one by one and asks them to explain the symptoms Teacher puts the following questions 1. How can you prevent Kwashiorkor and marasmus ? 2 What food will help in preventing Vitamin A deficiency in children ? 3. How can nutritional anaemia be prevented ?	Pictures
	Teacher gives assignment as follow-up and homework.	**Assignment** 1. Write the daily nutritional requirements for children for different age ranges. 2. Find out the nutritional programmes in action in your district. 3 Observe and list the nutritional problems among children in your locality.	

LESSON PLAN

Class :	X Standard
Number of pupils :	30 to 40
Topic :	Leisure-time activities
General aims ·	1. To help pupils realise the value of utilising leisure time purposefully 2. To bring to the attention of pupils activities which can be undertaken during leisure time. 3. To let pupils become time conscious and activity conscious.
Specific aims :	1. To help pupils realise the possibility of taking up different leisure-time activities. 2. To help pupils understand how to perform some of the leisure-time activities. 3. To motivate pupils to take up some leisure time activities
Aids to be used :	Film strips, flannel board, pictures, blackboard, handicrafts made during leisure time.

Specification	*Content*	*Learning experience and evaluation*	*Teaching aids*
1	2	3	4
		Introduction	
	Teacher tries to find out the activities performed by the pupils during their leisure time.	Teacher starts the class with the following informal talk.	
Pupils express themselves regarding their activities.		Tr : All of us know the timetable for school hours. Today, please let me know the activities you perform on a Sunday or any other holiday at home or in the hostel. Pu : On Sunday, I spend most of the time in reading newspaper, weekly magazine and other story books. Pu : I do embroidery work. Pu : I help my mother at home and learn cooking. Pu : I make purses with beads. Tr : You have some leisure time on Sunday and other holidays and engage yourselves in selected activities Even on week days, we have some leisure hours	
		Presentation	
Pupils concentrate and learn	Teacher explains the meaning of 'leisure time'	Tr What do we mean by leisure time ? A : Leisure time means the free time without any specific or routine work The individual can relax or do any activity of his choice or interest during the leisure time. Tr : We should never waste our time. Can you cite some proverbs on this point ?	Black board

1	2	3	4
Pupils recall, recognise and mention the sayings on time		A : 'Waste not, want not,' 'Time is precious'; 'Time once spent cannot be got back', 'Time and tide wait for none', 'An idle mind is a devil's workshop' Tr : It is necessary to utilise the time available properly. In poor and developing countries like ours, if each individual spends his or her time usefully the nation's standard of living will be improved and we can become active and alert.	Black board
	Teacher explains to pupils that different individuals have different kinds of demands on their leisure time.	Tr : There are many factors that help to decide the type of leisure time activity an individual can take up, can you mention some ?	
Pupils imagine or think of situations and mention the points		Pu : The interest of the individual. Tr : Yes, one may be interested in taking rest, other in painting, someone else in playing. Pu : The ability of the individual. Tr : The individual who has got the ability or skill in drawing or knitting loves doing that wrok Pu : The influence of the members in the family and friends. Tr : Yes, unless the members of the family encourage you, you cannot perform any activity successfully. In the same way, a friend or neighbour may influence. Pu : The economic condition of the individual Tr Yes, those who are poor can engage only in such activities, which do not require much money, but help to earn some money in turn	

1	2	3	4
		Pu : The aims and aspirations of an individual An individual deciding to make money may engage in activities which will earn money: the individual who likes to become good in photography or music may engage in that activity.	
Pupils take down the factors that decide the leisure-time activities.	Teacher presents the classification of leisure-time activities.	Tr : Based on the interast or the value an individual attaches to an activity, the activities may be grouped under the following heads 1. Activities of economic value 2. Activities of aesthetic value 3. Activities of recreational value, and 4. Activities of social value. Let us see one by one.	Strips on flannel board
	Teacher motivates the pupils to suggest activities under each category and explains them. First the activities which have economic value are discussed.	Tr : What are the activities of economic value ? A : Activities, performing of which help in raising money or the standard of living, are of economic values. Tr : Please give examples ? A : Spinning and selling the spun yarn A : Drawing and marketing the drawings or paintings for money.	Pictures on flannel board
Pupils think recall, and answer.		A : Typing. A . Raising kitchen garden at home and selling the produce or save money in buying by consuming the products. A : Some may prepare baskets and other articles with twine, wires and beads for sale. A : Most of us can prepare fans with papers and plant leaves and sell them.	

1	2	3	4
		A : These days, we find several members, who get low income, prepare goods and snacks and sell them.	
		A : An individual may even take up helping someone in looking after the stores or of pressing clothes for others and earn money.	
		Tr : *Teacher shows a picture or a photograph and* asks what do you see in this picture ?	*Picture*
Pupils understand		Pu : We see an individual taking photo—yes, Photography can also help a person earn money.	
		Tr : You can write similar other activities which can come under this category When any activity is taken upon economic grounds, it should be planned well and carried out regularly and systematically.	
Pupils think, imagine and give the points	Teacher explains the activities of aesthetic value getting the ideas from the pupils	Tr : What are the activities of aesthetic value ?	
		A The activities which give the individual aesthetic satisfaction come under this category	
		Tr : You have studied about 'aesthetic value' when we discussed about colour-combination and flower-arrangement.	
		An individual should possess or develop aesthetic sense. Only then he can perform aesthetic activity and derive satisfiaction. It may involve creative thinking	
		Tr : Can you suggest some activities of aesthetic value.	

1	2	3	4
Pupils think as well as look at the pictures and recognise the points.		A : Drawing, painting, painting on fabrics, music, dance and other fine arts, playing on musical instrument. Interior-decoration, preparing artistic items in using paper, wood or 'Thatu' and so on.	Pictures Products of handicraft
		Tr : These activities which have aesthetic value may have economic value also.	Pictures
	Teacher develops the lesson to bring out the points on activities of recreational value.	Tr : 'Recreational Value' suggests that some activities are performed by way of recreation to help us relax or divert our attention to a light and entertaining activity Look at the pictures and mention the activities.	
Pupils look at the pictures and give the points.		A : Listening to the radio, record player or tape-recorder; attending entertainments, taking part in entertainments, listening to musical instruments and music, going on excursion or picnics and the like	
		Tr : These activities have the entertaining value which prevents fatigue.	Pictures
Pupils listen to and understand their role in such activities	Teacher describes the activities of social value	Tr · Certain activities are performed in during leisure time in the society, for the benefit of others. Such activities give opportunities to come in contact with people, to know them and their needs and allow to understand the demands of the society. Such activities have social value and may help in the social progress. For example, cleaning the surroundings of your school as a group, taking up cleaning campaign, teaching the adults to read and write, teaching the poor people handicrafts and so on	

1	2	3	4
Pupils distinguish and understand	Teacher allows the pupils to distinguish the activities as individual and group activities; home and community activities.	Tr : All the activities mentioned may be executed either by an individual or by group of individuals. So they can be either individual activity or group activity. Pu Some may be performed in the home and others in the community. Tr · Yes, we may have activities at home and activities in the community school.	Black board
		Review	
Pupils recall and answer	Teacher puts questions to check the learning that has taken place.	1 What are the leisure time activities of economic value ? 2 Can all of us have activities of aesthetic value ? Give reasons. 3. How can one make activities of social value ? Give recreational value also.	
		Assignment	
Pupils take down the assignments.	Teacher gives assignments as follow-up activity.	1. List the leisure time activity in your family under the different categories. 2. Collect the products of the leisure-time activities from your family to have an exhibition in the class within a week's time. 3. Select one or two new activities, and utillise your leisure-time to do them.	

LESSON PLAN

Class : IX Standard

Number of pupils : 40

Topic : Selection of clothing for a school boy.

General aims :
1. To enable the pupils to realise that great care is needed while planning for selection and purchasing of clothing.
2. To help pupils become aware of the fact that a knowledge of fabrics is required to select fabrics for clothing.

Specific aims :
1. To guide pupils in selecting from different types of dresses for school-going boy.
2. To pinpoint the factors that contribute to the fitting of a dress to an individual.
3. To enable the pupils to plan a wardrobe for a school going boy.

Aids to be used : Black Board
Bulletin Board display
Display of fabrics and dresses.

Specification	*Content*	*Learning experience and evaluation*	*Teaching aids*
1	2	3	4
		Introduction	
	Teacher congratulates the pupils coming in uniform that day.	Teacher elicits the opinion of the pupils on their clothes. She puts the following questions.	
Pupils explain the practice in their families.		Tr : Who selects the dress for you ? A : Our parents select our clothes. A : We go with our parents to select the dress for us. Tr : How do you or your parents select ? Do you purchase whatever is attractive or whatever is shown by the salesman ?	
Pupils think and give the points	Teacher tries to get the factors known to the pupils in the selection of their clothes,	A : No. We see to the quality of the fabric, suitability to our wear and to the fashion of the day and the like. Tr : You have already studied on the qualities of fabrics and their use. To-day let us discuss on the selection of clothing for a school boy.	
		Presentation	
	Teacher elicits the points on the need to have clothes.	Tr : Why do we wear clothes ? Pu : 1. We wear clothes to protect us from changes in climate and environmental conditions. 2. To add to the good appearance. 3. To protect the tender parts of the body from being hurt easily, and 4 To satisfy our desire to have fabrics of different kinds Tr : So the fabric/we select should satisfy all these purposes.	Black board

1	2	3	4
	Teacher enables the pupils to distinguish	How many types of clothes should you have ? Pu : We need clothes for school wear; clothes for daily wear at other times; and clothes for occasional wear.	Strips on bulletin board
		Tr : What are the items that are included under the dresses for a school boy ? Pr : The items like outer wear—trousers or pants and shirts and inner wear like banians and underwear to protect the body, tie and belt to enhance the beauty and to have tight fitting and socks and shoes or chappals to protect the feet. Handkerchief also forms a part of dress.	Display of a set of dress
Pupils look at their dress and answer	Teacher elicits the points on the selection of school wear for a boy from the pupils.	Tr : What factors do you consider while selecting the school wear for a boy ? Pu : Whether there is specified uniform or any type of dress may be worn. In case of the uniform or ordinary wear certain factors are to be considered. 1. Children outgrow and outwear their clothes rapidly due to the progress in physical development. 2. Usually the fast colour is chosen for school uniform Still these colours in some kind of fabrics may fade away soon. Therefore the colour of the material chosen should be fast. 3. The material chosen for school wear will depend on where one lives and the season of the year—like woollen wear in cool climates and cottons in hot climates. 4. The clothing should be patterned to allow for growth with ease and freedom but with correct fitting.	

1	2	3	4
		5. It should be well constructed to stand hard-wear, and yet be comfortable. 6. It should be simple, accompanied by becomingness of shape, line, texture and colour. 7. It should be made of such material which will remain pleasing even after several washes 8. The trouser, the shirt, the tie, belt, socks and shoes or chappals of one set of dresses should have harmony. 9. The belt selected should not make any stain on the dress.	
		Tr : How many sets of school clothing one should have ?	
		Pu : Atleast three sets.	
	Teacher explains the basic idea in having school uniform.	Tr : Clothes for school wear should be of least cost. There is no need to buy costly materials, because the basic idea to have uniform is that the poor children should not feel inferior when they look at the well-to-do children coming in costly clothes.	
		Tr · What type of material should be selected for innerwear ?	
Pupils realise the need to have soft material for innerwear.	Teacher explains the qualities of the fabric for innerwear	Pu · Usually white cotton is selected so that it may be worn for the dress of any colour. In case of thin outer wear, the same colour may be considered for inner wear.	
		Tr : What should be the texture of the innerwear ?	
		Pu : Since the wear is in touch with the body, it should be soft, non-irritant and cool.	

1	2	3	4
	Teacher stresses on the type of material to be considered for everyday wear.	Tr : What material do you prefer for daily wear ? Pu : It is better to have comfortable clothing of pleasing colour and smooth texture which will withstand the rough use for a long time. Tr : It is better to avoid very bright colours with heavy designs for everyday wear. Tr : What types of dress do boys prefer for occasional wear ? Pu : It depends on the taste of the individual	
Pupils visualise their dresses and judge their choice.	Teacher makes the pupils realise the impact of taste and trend on the dress.	Pu : Some boys prefer attractive dresses which will catch the attention of the on-lookers. They give importance to the dress. Some boys prefer those dresses which will make them look pleasing. They give importance to the affect of the dress on them. Tr : The taste also changes with the trends of the day and with the possibility of having variety We should remember always that clothing is for the individual, and not the individual is for clothing.	
Pupils compare and recognise the merits and demerits.	Teacher brings the attention of the pupils to distinguish between readymade and homemade clothes.	Tr : The boys when they go for shopping are attracted by the ready-made garments available. There is slight difference in the measurement of the same size garment of different companies. So one has to wear and see for the fitting, the stitches should be checked for strength and stability. Sometimes in ready-made garments they combine two types of materials—one easily washable and the other which is affected on washing. Such items should be avoided. Ready-made dress may be costly also. While boys' clothes are to be tailored, the following instructions may be given:	Display of dresses.

1	2	3	4
		1. To have durable, flat seams and good workmanship. 2. To have roomy neck openings. 3. To have fasteners sewn firmly to withstand tugging and pulling. 4. To have button holes closely worked; and 5. To have strong stitches at all points of strain such as pocket corners, placket-openings, at the points of knees, elbows, armholes and under buttons.	
Pupils recall and answer	Teacher enables the pupils to recall the factors learnt in previous classes.	Tr : We need to consider the general factors to be borne in mind in the selection of fabrics. What are they ? 1. Fabric should be durable and should serve for a long time. 2. Should be suited to the purpose. 3. Should have the qualities which will help in the easy maintenance of the fabric. 4. Should be worth the money paid. 5. Should be of the type which makes the person feel comfortable. 6. Should be suited to the person who wears it regarding the colour, design and the finish that is used on the fabric. 7. Should give dignity to the person who wears it; and 8 Should be becoming.	Pictures
Pupils look at the picture and mention the points.		Tr : Should the parents consider the likes and dislikes of children ? Pu : Yes, only when we like the fabric we feel proud of wearing the clothing.	

1	2	3	4
		Tr : But at the same time the parents should develop good sense of judgement in children in the selection of fabrics. Sometimes friends may like to take same pattern. The parents have to allow such desires of children. Planning the wardrobe involves considering the need to have an additional dress as well as the number of dresses already on hand	
		Review	
Pupils recall and answer	Teacher checks the learning that has taken place by questioning on the lesson taught.	1. What are the items included under clothing ? 2. What are the factors to be considered while selecting the school wear for children ? 3. Mention the factors that would influence in the choice of a fabric for a school boy.	
		Assignment	
	Assignment is given to the pupils to apply the knowledge gained.	Write the types of fabrics you would select for a boy of 14 years, justifying your choice	

The following principles regarding the teaching process should guide the planning of lesson, to help pupils progress from:

1. Simple to complex
2. Easy to difficult
3. Concrete to abstract
4. Known to unknown
5. Whole to the part
6. Empirical to rational

Inductive as well as deductive approach, spaced, controlled and meaningful repetition, activated and motivated two-way participation and supervised group study, facilitate learning. Integrated teaching with an inter-disciplinary approach, will help teachers to establish the common links in several subjects The teacher's versatility will then be appreciated by the pupils.

Every lesson must be evaluated. The following checklist will be helpful.

Evaluating the lesson

Class: Name of teacher:

Topic:

A. *Introduction*

1. Did the teacher obtain the attention of the class quickly ?
2. Were all pupils motivated effectively ?
3. Was the lesson introduced attractively ?
4. Were the physical conditions conducive to good learning ?

B. *Presentation and development of the lesson*

1. Were the pupils clear about the objectives of the lesson ?
2. Was the lesson-unit presented in an organised and systematic manner ?
3. What audio-visual and other aids were used ?
4. Were the activities demonstrated ?
5. Were the concepts, understandings and generalisation developed clearly ?
6. Were the relevant skills emphasized ?
7. Were the questions, asked by the teacher — (a) appropriate (b) distributed among all the pupils (c) spread over the lesson.
8. Was pupil participation adequate ?

   (a) Did the pupils raise relevant questions and problems ?
   (b) Did they answer the questions raised by the teacher ?
9. Were pupils given opportunity to show initiative ?
10. Was provision made for catering to individual differences among pupils.

C. *Feed back and recapitulation*

1. Was the lesson summarised adequately ?
2. Were the facts and understandings tested ?
3. Were suitable steps taken to find out pupils' difficulties ?
4. Were the difficulties of pupils dealt with ?
5. Were the test results used ?

D. *Application*

1. Were the assignments given practical or productive ?
2. Were the assignments appropriate ?
3. Was the 'follow up' work adequate ?

E. *General*

1. Were the voice and manners of teacher effective ?
2. Were her language and style appropriate to the level of pupils ?
3. Was she resourceful, pleasant, understanding and tactful ?
4. Was the pupil-teacher relationship cordial ?
5. Was the lesson effective ?

Marks of a well delivered lesson

The marks of a well delivered lesson are:

1. Lesson notes are prepared well in advance.
2. The aims of the lesson are clearly stated.
3. The teacher's movements and gestures are pleasant, natural and her language and style are suitable to the pupils.
4. The physical conditions in the classroom are congenial to learning.
5. Interesting and appropriate methods are used for presenting new material.
6. The black board is used appropriately with the summary written in a systematic manner.
7. Pupils are active participants. Individual attention is paid to pupils and they are helped to follow every step and note the points in the lesson.

8. Questions are framed well and equally distributed avoiding mass answering.
9. Good illustrative aids are used efficiently; and
10. Review of the lesson is adequate; mistakes are corrected then and there.

The ability to plan lessons and do a good job in the classroom is a great asset. It needs to be developed through steadfast effort in many directions. Teachers should perceive the objectives for teaching a lesson, topic and unit. They should endeavour to achieve the objectives during the prescribed time for the lesson or course, through the best possible combination of methods, utilising minimum resources with maximum efficiency.

ASSIGNMENTS

1. *Organise a class discussion on "The type of lesson plan will depend upon the nature of the topic to be taught and the method of teaching".*
2. *Draw up a lesson plan on the Functions of the Family.*
3. *Observe the lesson conducted by one of your classmates and evaluate.*
4. *Develop a lesson plan to teach National Integration through Home Science.*

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CHAPTER XIII

The School Set-up and the Home Science Department

> *Education is not learning; it is the exercise and development of the powers of the mind; and the two great methods by which this end may be accomplished are in the halls of learning or in the conflicts in life.*
>
> — PRINCETON REVIEW

THE CHIEF GOALS of education are development of sound character and personality in pupils, mental and physical health and ability to foster and maintain satisfying relationships, worthy home membership with a strong appreciation for their cultural heritage Presently changes in the role and function of the family are so rapid and varied, that tradition alone can no longer ensure good homes. Courses in school for preparing the young for their future roles as parents and citizens are essential. The school set-up should be such that it will foster the learning of knowledge, attitudes, skills, abilities, values, resourcefulness and the competences required. The school should help to develop in pupils leadership, sociability, co-operation and civic and vocational efficiency. With dynamic approaches, the schools should provide pupils appropriate activities, projects and social situations which will develop their initiatives and inculcate desirable habits. The school set-up should provide the background, atmosphere, amenities, facilities, guidance and opportunities to grow in social poise, managerial ability and competences in the art of living.

The present day courses and curricula based on the traditional methods of teaching do not give pupils insight into the everyday world, in which they live and which they have to face when they pass out of school. Consequently, pupils leave school unprepared to take their place in the community with confidence. Unless the school is in rapport with the community life the education imparted will be incomplete.

The school curriculum needs to be broad and balanced. Today it appears to train the memory power and prepare pupils examinations but not the whole personality of the pupil. The non-cognitive aspects of the personality, aptitude, emotions and appreciations are largely ignored. Although games, crafts and some social activities are included in the school programme they are not regarded as important and integral parts of the curriculum, since no public examinations are prescribed for such aspects. A subject like Home Science which is psychologically and socially important and indispensable in the general education of boys and girls, is also not given attention. Competitive success is stressed rather than the joy of originality, personal achievement integrity and co-operative success. Lessons are imparted in a mechanical way, giving information which is reluctantly memorized by the pupils. The situation gets further aggravated by the inefficiencies and deficiencies resulting from economic or other difficulties.

The stereotyped system curbs the teacher's initiative. It calls for the use of mechanical and lifeless methods of teaching, which while depress the spirit of enquiry, encourage memorisation and gives a wrong motive to education, namely, maximum percentage of 'passes'. Thus the present day education caters only to a part of the pupils' development.

In the midst of these problems, the school needs to function as a specialised agency of education. According to the Secondary Education Commission(1), the secondary school must be responsible for equipping its pupils adequately with "the qualities of character to play their part, worthily and competently in the improvement of national life". The school set-up should stimulate the mental abilities of boys and girls and help them acquire understandings, special motor abilities and emotionalized learning.

The home science department

In the Home Science class, activities such as keeping home and its surroundings clean, preparing food and calculating its nutritive value, decorating the home, personal hygiene, first aid, home management, division of labour, application of art and beauty in daily life, increasing family income through crafts such as spinning, dress making, weaving, kitchen gardening, handling money and other resources, child care and cultivating citizenship qualities through hobbies, participation in excursions, entertainments, conducting prayers and celebrating festivals are the media of education. In carrying out these activities the teacher helps the pupils with meaningful planning and minimum resources to derive maximum satisfaction. Provision of adequate, attractive and comfortable facilities for the Home Science department will contribute greatly towards pupils' learning.

The Home Science teacher should be responsible for the procurement of equipment and supplies for the department, their care and maintenance. She must ensure that the necessary equipment are available to begin with, and also suggest additions, replacements and alterations whenever necessary. It is possible even within limited finances, home-like, attractive and adequate facilities could be obtained, fulfilling the academic and curricular requirements.

The atmosphere in the Home Science classroom, should simulate that of pupils' homes. At the same time, the furniture and equipment must be strong and durable to withstand the hard-wear of school use.

The factors to be considered while planning the Home Science department are:

1. Location
2. Space
3. Curriculum
4. Class organisation
5. The number of periods allotted
6. Provision for teaching parents
7. Provision for expansion
8. Equipment
9. Teaching aids
10. Text books in Home Science
11. Library
12. Other facilities
13. Recurring budget
14. Records

1. Location of the home science department (room)

The Home Science department may be located in any part of the school. The advantages in locating it on the ground floor near an entrance to the building, are the resulting economy in installations, electric and water connections and step-saving in receiving supplies. The delivery of articles, removal of garbage and access to pupils and others will be easy.

2. Space

The department can have one or more rooms depending upon the size of the rooms and enrolment. While some aspects of Home Science can be taught in an ordinary classroom, assembly hall or community centre, others require space and provision for pupil activities. For the theoretical part which involves reading and writing, calculation of prices, drawing plans and group discussions, an ordinary room would be sufficient. This room should have the necessary pieces of furniture, such as desks, tables and chairs of the correct height for pupils, a teacher's desk and chair, a blackboard, bulletin board, easel for use with flannel boards, satisfactory lighting, facilities for washing hands and a container for drinking water. Storage cupboards for educational material which can be locked and shelves for reading material should be available. For the preparation of educational aids, posters and models, drawing patterns and cutting of fabrics, larger working surfaces would be needed. Folding tables placed beside one another can provide the additional work space and can also be used for holding discussions.

For practical work and for carrying out different activities, special facilities are needed, such as facilities for food preparation, baking, serving meals, storage of foods, washing dishes and cleaning various materials, tables-large enough to cut material for a dress, for sewing machines, for ironing, tools for home repairs and home improvements for planning the use of available space, to practice furnishing a home to meet family needs using partitioning planks and curtains and rods for arranging a bed, a crib and a baby bath. For all these activities, adequate storage is also needed. A multi-purpose room with facilities for teaching all areas will be adequate. Figure shows a plan for "An all purpose room" in which six groups of six—eight pupils each, can work simultaneously. It has the following areas:

Foods and Nutrition,
Textiles and Clothing,
Housing,
Home Management and related art,
Health, Child Care and development and reading.

A Home Science department, like home, should have a living centre, work (business) centres and social centres. Maintenance of a home-like atmosphere in the department should be one of the primary aims of the Home Science teacher In a Home Science department, cleanliness is important since pupils are to develop the attitudes and habits which are necessary for maintaining their homes and surroundings clean and orderly.

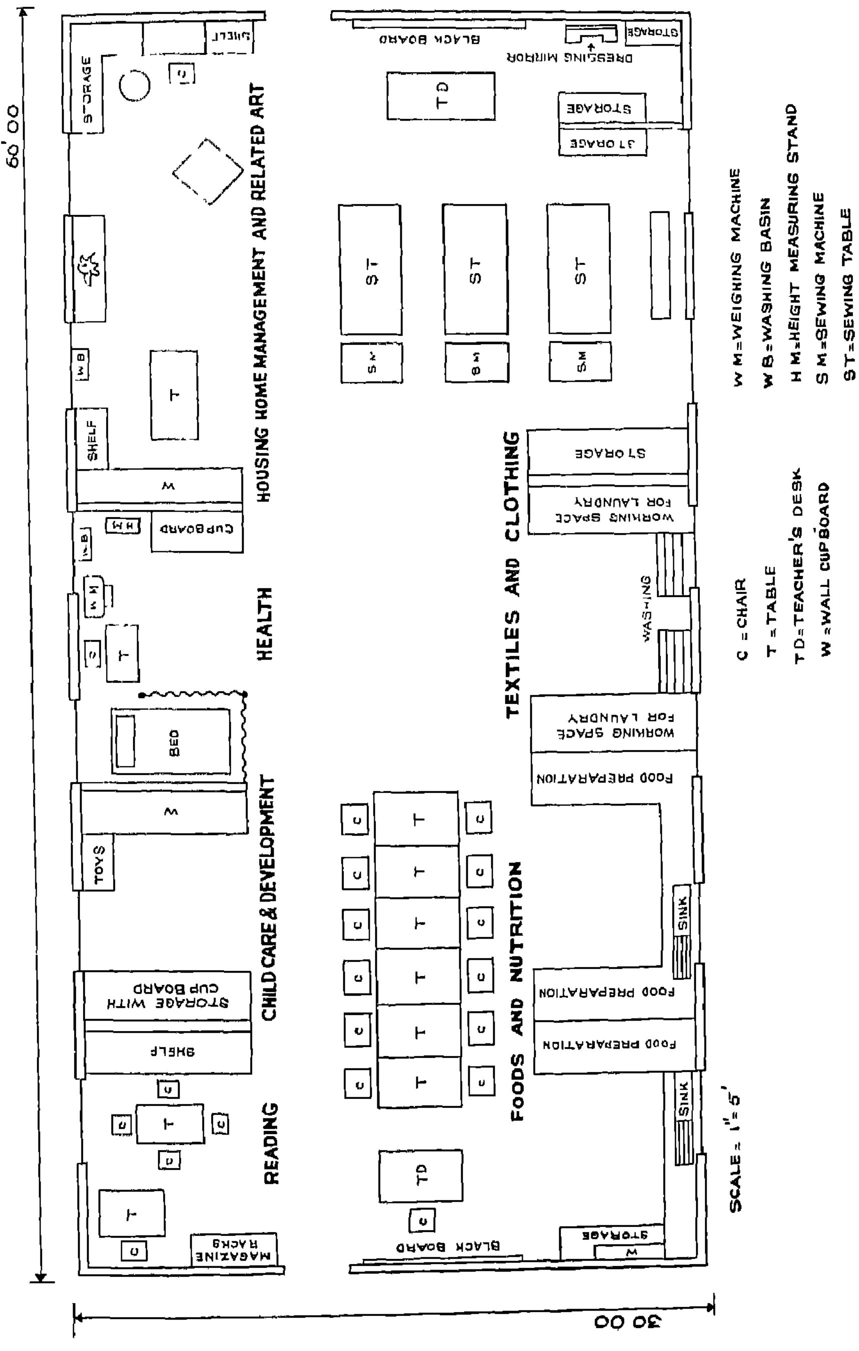
3. *Curriculum*

A broad programme of Home Science will include work in child development, human relationships, foods, nutrition, household management, housing, textiles, clothing, laundry, health, home nursing and first aid. This complex must be integrated with the general science for secondary schools.

4. *Class size*

The number, size of classes-space and equipment needed must be sufficient to handle the largest class. It is advisable to have not more

ALL PURPOSE HOME SCIENCE ROOM



W M = WEIGHING MACHINE
W B = WASHING BASIN
H M = HEIGHT MEASURING STAND
S M = SEWING MACHINE
S T = SEWING TABLE

C = CHAIR
T = TABLE
T D = TEACHER'S DESK
W = WALL CUPBOARD

SCALE = 1" = 5'

than 40 pupils in a class and not more than 20 pupils in a practical session.

5. *The number of periods the room will be occupied*

The time table and the number of periods allotted for teaching Home Science—theory and practical—class-wise should be considered and provision made accordingly. For the curriculum suggested two-three periods a week will be adequate in each of the 9th, 10th and 11th standards.

6. *Provision for teaching parents*

Providing a separate set-up in the Home Science department for community participation and parents' meetings will increase the efficiency of teaching.

7. *Provision for future expansion*

In planning a new building, the probable growth in the number of pupils opting Home Science in the years ahead needs to be considered and provisions made accordingly.

8. *The equipment*

The equipment used must set standards attainable by a majority of homes in the community. Simple, attractive, modern equipment and furniture will encourage pupils to make improvement in their own homes. On the other hand, if the Home Science rooms are equipped with costly, foreign and unfamiliar articles, which pupils cannot afford to have in their own homes, they are likely to be indifferent and not practise at home what they have learned at school. Given below is a list of the main equipment required.

EQUIPMENT

[For six groups of six pupils each]

Equipment	*Number*	*Cost**
1	2	3
I. Child Care and Development		
		Rs.
1. Feeding kit containing bottles, brushes, measuring and mixing utensils	1 set	40-00
2. Bathing kit containing basin, mug, patila, tongs	1 set	50-00
3. Educational soft toys, play materials	3 sets	30-00
Furniture		
Racks for toys and kits (wooden)	1	25-00
Linen		
Samples of children's clothes, napkins, towels and bedding materials		75-00
II. Foods and Nutrition		
Equipment		
Food Preparation		
1. Pans for cooking — aluminium dekshis with lids 4 in each set	6 sets	120-00
2. Iddli steamer	1	50-00
3. Pressure cooker	1	100-00
4. Baking unit (mechanical or electrical)	1	100-00
5. Kedahis — deep frying pans	2	20-00
6. Shallow frying pans with handles	3	30-00
7. Tavas (iron)	3	24-00
8. Coffee maker (stainless steel)	1	24-00
9. Kettles (aluminium)	6	60-00
10. Mixing bowls 3 of different sizes in one set (china)	6 sets	72-00
11. Kitchen knives (stainless steel)	6	30-00
12. Fruit knives (stainless steel)	6	18-00
13. Vegetable peelers	6	12-00
14. Cocoanut graters	6	12-00
15. Tomato slicers	2	6-00
16. Vegetable shapers	1	2-00
17. Onion and cabbage cutter	1	3-00
18. Egg beater	1	12-00
19. Wire strainer — Wire	3	4-50
20. Flour sieves	2	8-00

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* Approximate

1	2	3
		Rs.
21. Tea strainer ...	2	4-00
22. Potato and dhal masher (wooden or polythene) ...	1	1-50
23. Curd churner (wooden or polythene) ...	1	2-00
24. Moulds for jellys, cakes and other items .	2	5-00
25. Frying spoons—perforated (stainless steel) ...	3	24-00
26. Spatula (stainless steel) ...	6	48-00
27. Rollers and boards (wooden) ...	6	24-00
28. Ice cream making pail ...	1	50-00
29. Tongs for lifting purpose (stainless steel) ...	2	8-00
30. Tin cutter and can opener ...	1	3-00
31. Grinding stone ...	1	8-00
32. Mashing stone ...	1	8-00
33. Kerosene stoves with stands ...	6	120-00
34. Sigress chain .	6	30-00
Food Science		
1. Deep serving spoons (stainless steel) ...	6	48-00
2. Shallow serving spoons (stainless steel) ...	12	56-00
3. Table spoons (stainless steel) ...	12	24-00
4. Teaspoons (stainless steel) ...	12	18-00
5. Tongs (stainless steel) ...	2	6-00
6. Cutlery with one table knife, fork, tablespoon and one teaspoon in a set ...	2 sets	30-00
7. Dinner set for six (Plastic—unbreakable) ..	1 set	125-00
8. Tea set (china) for six ...	1 set	45-00
9. Thalies (plates) with 6 katories in a set (stainless steel) ...	6 sets	325-00
10. Jug with six tumblers (glass) ...	1 set	17-00
11. Tumblers (glass) ...	12	8-00
12. Water jug (stainless steel) ...	1	20-00
13. Tumblers (stainless steel) ...	12	72-00
14. Small lids (stainless steel) ...	6	8-00
15. Trays (polythene) ...	4	24-00
16. Basins (polythene) ...	6	36-00
17. Mugs (polythene) ...	6	12-00
18. Dinner plates (25 cm—stainless steel) ...	6	62-00
Measuring and Storing		
1. Food weighing balance ...	1	75-00
2. Volume measures (metric 1, ½, ¼ in a set) ...	2 sets	25-00

1	2	3	
		Rs.	
3. Measuring cups (1, ½, 1/3, ¼ in a set)	6 sets	18-00	
4. Measuring spoons (aluminium)	6 sets	12-00	
5. Janatha refrigerator (earthenware)	1 set	8-00	
6. Hay box	1	20-00	
7. Cooking thermometer	2	10-00	
8. Containers of different sizes to store food (tin, polythene, aluminium)	20	100-00	
9. Bottles of different sizes (glass)	10	5-00	
			22 00-00
Furniture			
1. Meat-safe (wooden)	1	150-00	
2. Food service table	1	150-00	
3 Table mats	1 set of 12	20-00	
			320-00
(The kitchen will also have shelves under the raised cooking surface)			
Linen			
1 Table cloths (white cotton)	2	20-00	
2. Tray cloths	6	6-00	
3. Napkins	12	18-00	
4. Dusters, mopping cloths hand towels	12 sets	36-00	
			80-00
III. Household (Home) Management			
Equipment			
1. Flower vases	6	40-00	
2 Pin holders	6	28-00	
3. Art-pieces assorted	24	50-00	
4. Scissors	2 pairs	10-00	
5. Tools for cleaning — brushes, brooms, broomsticks, dusters	2 sets	12-00	
6. Gardening tools for raising kitchen garden		100-00	
			250-00
Furniture			
1. Sofa set (3 pieces and a tea-poy)	1 set	450-00	
2. Modas		30-00	
			480-00

1	2	3	
		Rs.	
Linen			
1. Door and window curtains	2 sets	75-00	
2. Mats	2	16-00	
3. Fabrics for colour combinations		20-00	
			111-00
IV. Housing			
Equipment			
1. Blacks to assemble models of house	1 set	25-00	
2. Blue prints		20-00	
			45-00
V. Textiles and Clothing			
Equipment			
1. Bowls for mixing blue and for dyeing fabrics (enamel)	4	16-00	
2. Laddles (enamel)	4	12-00	
3. Buckets (polythene)	2	18-00	
4. Scubbing board	2	12-00	
5. Sewing machines	4	2400-00	
6. Pairs of scissors	6	48-00	
7. Pinking shears	2	20-00	
8. Electric iron	2	150-00	
9. Microscope	1	750-00	
10. Test tubes and test tube rack	6 sets	75-00	
11. Spirit lamps	6	24-00	
12. Meter scales	6	12-00	
13. Measuring tapes	6	6-00	
			3,543-00
Furniture			
1. Ironing board	2	75-00	
2. Cloth rack and drier	2	20-00	
			95-00
Linen			
1. Fabrics of different designs and finishes		100-00	100-00
VI. Health, Home Nursing and First Aid			
Equipment			
1. Food tray with stand	1	30-00	
2. Bedding (mattress, pillow)	1 set	150-00	
3. Rubber sheet	1	15-00	

1	2	3	
		Rs.	
Equipment			
4 Hot water bag	1	15-00	
5. Basin with stand	1	25-00	
6. Bed-pan	1	5-00	
7. Medicine glasses	1 set	4-00	
8. Ice bag	1	10-00	
9. Clinical thermometer	2	6-00	
10. First aid box (St. Johns Ambulance)	1	20-00	
11. Human weighing scales — The school			
			280-00
Furniture			
1. Cot (steel)	1	150-00	
2. Medicine chest	1	10-00	
3 Wooden stool or steel teapoy	1	16-00	
			176-00
Linen			
1. Bedsheets	2	32-00	
2. Pillows with cases	2	20-00	
3. Towels	2	6 00	
			58-00

VII. Audio-Visual Equipment

The equipment available in the school can be used.

Total Cost in Equipping the Home Science Room

Unit	*Approximate cost for*			*Total*
	Equipment	*Furniture*	*Linen*	
I. Child care and Development	120-00	25-00	75-00	220-00
II. Foods and Nutrition	2200-00	320-00	80-00	2600-00
III. Household (Home) Management	250-00	480-00	111-00	841-00
IV. Housing	75-00	—	—	75-00
V. Textiles and Clothing	3555-00	95-00	100-00	3750-00
VI. Health, Home Nursing and First Aid	280-00	176-00	58-00	514-00
Total	6480-00	1096-00	424-00	8000-00

9. *Teaching aids*

A minimum of usable, functional, up-to-date teaching aids-pictures, posters, flash cards, slides, film strips, films must be provided. The list of some suitable film strips and films are given below:

Audio-Visual Aids — List of Names and Addresses from where Audio-Visual Films or Film Strips are Available

S. No.	*Title*	*Source*	*Language*
1	2	3	4
	Child Care and Development		
Film Strips			
1.	Child Training film strips (11 filmstrips)	National Film Board of Canada	English
2.	Before Baby's birthday	-do-	-do-
3.	Caring for baby	-do-	-do-
4.	Clear gain	-do-	-do-
5.	Destructiveness	-do-	-do-
6.	Discipline	-do-	-do-
7.	Fear	-do-	-do-
8.	Feeding habits	-do-	-do-
9.	How shall I tell my teenager about sex	-do-	-do-
10.	Learning to read	-do-	-do-
11.	Training of mentally retarded child at home	-do-	-do-
Films			
1.	Heredity and Environment	National Education and Information Ltd, Bombay	Bengali, Kannada Hindi, Telugu, Marathi
2.	Heredity and prenatal development	-do-	-do-
3.	Female cycle (colour)	-do-	Bengali, Hindi
4.	Puberty in boys (colour)	-do-	-do-
5.	Pregnancy and birth (colour)	-do-	-do-
6.	Human Body — reproductive system	-do-	-do-
7.	Human Reproduction	-do-	Bengali, Hindi Marathi, Telugu
	Human Relations		
Films			
1.	Discipline and youth guidance--Developing responsibility	National Education and Information Ltd, Bombay	Hindi
2.	How honest are you	-do-	Hindi

1	2	3	4
3.	Group discussion	-do-	Bengali, Hindi
4.	Trouble in the family	-do-	English
5.	Towards emotional maturity	-do-	English

Foods and Nutrition

Film Strips

1	Man and health	-do-	English
2.	Man and food	-do-	
3.	Carbohydrates and Caloria	-do-	
4.	Fats and Proteins	-do-	
5.	Vitamins and mineral salts	-do-	
6.	Food cycle — Carbon	-do-	
7.	Food cycle — Nitrogen	-do-	
8	What happens in cooking	-do-	
9	The essential of diet	-do-	
10	Eat well — Live well	-do-	
11.	The nutrients in food	-do-	
12.	How food is digested	-do-	
13	Consumer problem in nutrition	-do-	
14.	Balanced diet for adults	-do-	
15.	Better diet and low cost	-do-	

Films

1.	Grading of canned fruits and vegetables	National Educational and Information Films Ltd, National House, Tulloch Road, Bombay, 400 039	Hindi, English
2.	Apple for all seasons (colour)	-do-	-do-
3.	Tomato canning	-do-	-do-
4.	Peas canning	-do-	-do-
5	Nutritional needs of our body	-do-	Hindi, Kannada
6.	Good eating habits	-do-	Kannada
7.	Food that builds good health	-do-	Kannada
8.	Why, eat our vegetables — Food Adulteration	-do-	Hindi, Kannada
9.	Food that builds health (Colour)	Library, Directorate of Extension, New Delhi	

Home Management

Filmstrips

1.	Water taps, pipes and systems	National Education and Information Films Ltd., Tullock Road, Bombay 400 039	English
2.	Electrical appliances	-do-	-do-

1	2	3	4
3.	Rural housing	National Education & Information Films Ltd., Tullock Road, Bombay 400 039	English
4.	Poor housing and poor roads	-do-	-do-
5.	Water seal latrine	-do-	-do-

Films

1.	Colour keying in art and living	Ministry of Education, New Delhi	English
2.	Problems of housing	-do-	-do-
3.	Search for shelter	-do-	-do-
4.	Home electrical appliances	-do-	-do-
5.	Repairing a window pane	-do-	-do-
6.	Repairing an uphastened Arm chair	-do-	-do-
7.	Building a home	-do-	-do-
8.	Home in which you live	-do-	-do-
9.	Shelter	-do-	-do-
10.	Country homes	-do-	-do-
11.	Profitable past times	-do-	-do-
12	Gardening	-do-	-do-
13	Banks & credits	-do-	-do-
14.	Fred meets a bank	-do-	-do-
15.	IBEC low cost housing	-do-	-do-
16	New horizons in housing	USIS	-do-
17.	Our silent partner	USIA	-do-
18.	Story of flen oaks village	USIS	-do-

Textiles and Clothing

1.	Clothing for children	Library, Directorate of Extension, New Delhi	English
2	Printing by Silk screen (colour)	Central Film Library	English

Health, Home Nursing and First Aid

1	Cholera and its control	National Education & Information Films Ltd., Bombay	Hindi, Kannada Telugu
2.	Care of eyes	-do-	Telugu
3	Tracking down invisibles foes (harmful, microbes and how to combat them	-do-	Hindi
4	House fly and its control	-do-	Kannada
5.	Mosquito and its control	-do-	Hindi
6	Exercise and health	-do-	Telugu
7.	Home treatment of T B., lung and heart circulation	-do-	Bengali Hindi
8.	Human body — digestive system	-do-	Hindi

1	2	3	4
9.	Nine basic functions of the human body	National Education & Information Films Ltd , Bombay	Hindi
10.	Human hair	-do-	-do-
11.	Human Throat	-do-	-do-
12.	Savdan	-do-	-do-
13.	How to avoid mincle train	-do-	Bengali, Hindi
14.	Rescue parity	-do-	Hindi, Telugu
15.	First aid	-do-	English
16.	To your health	World Health Organization, New Delhi	-do-
17.	Healthy hearts	-do-	-do-
18	It's all up to you	-do-	-do-
19.	Your heart is your health	-do-	-do-
20.	Heart sweet heart	-do-	-do-
21.	Environmental health — Little man big city	-do-	-do-
22.	Pollution	-do-	-do-
23.	Family health — Prevention is better than cure	-do-	do-
24.	Health begins at home	-do-	-do-
25.	Pupil like maria (short and long)	-do-	-do-

10. *Textbooks in home science*

Although home science provides the knowledge which is applied every minute in our living, the introduction of this subject in schools has been slow. Because of the discouraging reception to Home Science, there are not many books published. There is a great paucity of Indian books for reference in Home Science. Indian authors must write books for Indian Homes.

Good text books which have detailed accounts of the subject matter will form good reference books also. The availability of books on any subject matter inspires the learners to study those aspects on their own; whereas the absence of book on any aspect, leaves the learners with abstract ideas. The books that are available at present in English and in Tamil cover the aspects which will provide the necessary knowledge in Home Science. The characteristics of a good text book are :

1. Chapters are graded suited to the grading of the syllabus.
2. The content covers all the aspects mentioned in the syllabus for which the book is written.
3. The information provided should be suited to the stage and to the living conditions of the learners.

4. If Home Science is learned in regional languages, books should be written in different regional languages.
5. Proper diagrams, pictures and charts should be provided on necessary aspects
6. At the end of each chapter references cited should be given,
7. Each chapter should be provided with assignments at the end.
8. The print, illustrations and paper used should be attractive and capable of creating interest in the learners.
9. The information provided in the book should be up-to-date and accurate. Revisions must be done from time to time; and
10. Above all, the book should be written by a qualified, experienced Home Scientist who is thorough with the Indian way of living and conditions in India.

The NCERT may publish the books calling the Home Science Association of India to suggest proper persons to write books in Home Science.

11. *Library*

The Home Science department must have a nucleus of latest editions of books written by Indian authors of repute in simple language, in the different subjects. Every year additional books must be purchased in order to have the information up-to-date.

The library should have space adequate for pupils to read comfortably. The teacher should stimulate and guide the pupils in reading, by bringing to their attention relevant pages in attractive books, pamphlets and journals. Definite periods for supervised library work should be assigned in the time table.

A list of the basic reference books, charts, films, journals, magazines and other teaching aids available should be present in the library. The teacher should select suitable titles for pupils to study under her guidance. A sum of Rs. 500 to 1000 may be provided in the annual recurring budget for this purpose Given below is a list of books suggested for starting the department.

LIST OF BOOKS

S. No	*Author*	*Title of the book*	*Year*	*Publisher*	*Price*
1	2	3	4	5	6
		CHILD CARE AND DEVELOPMENT			Rs.
1.	Baker (J H)	Introduction to Exceptional Children	1959	Macmillan & Co., New York	30 00
2.	Blackham & Silberman	Modification of Child Behaviour	1971	Wadsworth Publishing Co., Balmont, California	29 65
3.	Breckenridge (ME) etc.	Child Development	1965	W. B. Saunder Co., London	32 00
4.	Brisbane (H E)	Developing Child	1965	Chas A. Bennett Co Inc., Peoria, Illinois	46 00
5	Burbury (W M) etc.	Child Guidance	1961	Macmillan & Co., New York	13·13
6.	Carmichael (L)	Manual of Child Psychology	1954	Wiley Eastern Pvt. Ltd, New Delhi	22 50
7.	Chittenden (G E)	Living with Children	1944	Macmillan Co., New York	10 00
8.	Chowdhry (D P)	Child Welfare manual	1963	Atma Ram & Sons, Kashmere Gate, Delhi-6	10 00
9.	Dinkmeyer (D C)	Child Development	1967	Prentice-Hall of India, Pvt. Ltd., New Delhi.	10 00
10	Dunn (L M)	Exceptional Children in the Schools	1964	Holt, Rinehart and Winston, Inc., New York	31·25
11.	Edge (Patricia)	Child Care and Management	—	Faber and Faber Ltd., 241 Russell Square, London	24 00
12.	Forest (Ilse)	Child Development	1954	Mc Graw Hill Book Co. Inc, London	25 00
13.	Foss (B M)	Determinants of Infant Behaviour	1965	John Wiley & Sons., New York.	15 00
14.	Gardner (D B)	Development of Early Childhood	1964	Harper and Row, New York.	13 00
15.	Gesell (Arnold)	The First Five Years of Life	—	Methuen & Co Ltd	22 00
16.	Gesell (Arnold)	The Child from 5 to 10	1946	Harper and Brothers Publishers, New York	30 00

1	2	3	4	5	6
17.	Gesell (Arnold)	Infant and Child in the Culture of Today	1943	Harper and Brothers Publishers, New York	25 00
18.	Goodspeed etc.	Child Care and Guidance	1953	J. B Lippincott Co., Philadelphia	25·00
19	Greenberg (S. M.) etc.	Our Children Today	1955	The Viking Press, New York	28 00
20.	Hammond (SL)	Good Schools for Young Children	1963	Macmillan Co., New York	33·75
21.	Hartley (RE)	Complete book of Children's Play	1957	Thomas Y. Crowell Co., New York	40 00
22.	Heffernan (Helen)	Guiding the Young Child	1951	D. C. Heath and Co , Boston	20 00
23.	Hoffman & Hoffman	Review of Child Development Research	1964	Russell Sage Foundations, New York	22·00
24.	Hurlock (E B)	Child Development	1956	McGraw Hill Book Co., New York	38·00
25.	Hutt (M L) & Gibby (R G)	The Child. Development and Adjustment	1959	Allyn & Bacon. Inc., Boston	55 00
26.	Hymes (J L)	Understanding your Child	1952	Prentice Hall, Inc., Englewood Cliffs, N. J.	2 00
27.	Jersild (A T)	Child Psychology	1968	Staples Press, Golden Square, London	63 00
28.	Johnson (June)	Home Play for the Preschool Child	1957	Harper & Brothers, New York	20 00
29.	Kennedy (Wallace. A)	Child Psychology	1971	Prentice-Hall, Inc., Englewood Cliffs, New Jersey	78 75
30.	Lavatelli (CS) and Stendler (F)	Readings in Child Behaviour and Development	1972	Harcourt Brace Jovanovich, Inc , New York.	55 00
31	Lipsitt (Lewis P) & Spiker (C C)	Advances in Child Development and Behaviour	1963	Academic Press, New York	84 00
32.	Mackenzie (Catherine)	Parent and Child	1948	William Sloane Associates Inc., New York	20 00
33	Maynard (Norman)	Child Study	1970	Oxford University Press, London	12·00
34.	Modak (Tarabai)	Balwadis in Rural Areas	1958	Directorate of Extension Training, New Delhi	6·00
35.	Moustakas & Berson	Nursery School and Child Care Centre	1955	William Morrow & Co , New York	10 00
36.	Macklean	Child Guidance and the School	1966	Mithuen & Co., London	8 55
37.	Munsinger	Fundamentals of Child Development	1971	Holt, Rinehart & Winston, Inc.	82·13
38.	Mussen	Child Development and Personality	1963	Harper and Row, New York	19·50

1	2	3	3	4	6
39	Mussen	Handbook of Research Methods in Child Development	1960	Wiley Eastern, Pvt. Ltd., New Delhi	24 75
40.	Mussen	Psychological Development of the Child	1969	Prentice Hall Pvt. Ltd , New Delhi	7 50
41.	NCERT	Child Development. A Symposium	1964	NCERT, New Delhi	15 00
42	Newton	The Family Book of Child care	1957	Harper & Brothers New York	35 00
43.	Pitcairn (Leonora)	Child care for Indian Students	1971	Cambridge Univ Press, London	36 00
44	Pollard & Geoghegan	Growing Child in Contemporary Society	1969	Bruce Publishing Co	54·38
45.	Prescott	The Child in the Educative Process	1957	McGraw-Hill Book Co., New York	32 00
46	Seidman (Jerome M)	The Child: A Book of Readings	1969	Holt, Rinehart, and Winston Inc , New York	70 00
47.	Smart and Smart	Children: Development and Relationships	1967	Macmillan Co , London	67·15
48	Stott (D H)	Studies of Troublesome Children	1966	Tavistock Publications, London	28·80
49.	Stott (D H)	Child Development	1967	Holt, Rinehart & Winston Inc , New York	73 13
50	Thompson	Child Psychology	1969	Times of India Press, Bombay	11 00
51	Trapp & Himelstein	Readings on the Exceptional Child	1962	Appleton-Century-Croft, N Y.	74·65
52	Uday Sankar	Problem Children	1957	Atma Ram & Sons, Delhi-6	8·00
53.	Watson (R I)	Psychology of the Child	1959	John Wiley & Sons Inc , N. Y	49 00
54.	Williams (Norman)	Child Development	1969	Heinemann Educational Books, London	6·75

HUMAN RELATIONSHIP

1.	Anderson (M), *Ed.*	Sociology of the family	1971	Penguin Books Ltd, Harmonds Worth, Middlesex, England	10 00
2.	Baxter (L), Justin (M M) and Rust (LO)	Our home and family	1952	J. B Lippincott Co , Chicago.	20 00
3.	,,	Sharing family living	1951	,,	20·00
4.	Bell (N W) and Vogel (E F), Ed.	A modern introduction to the family	1960	The Free Press of Glencoe, Illinois	40 00

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5.	Bossard (JHS) and Boll (ES)	Ritual in family living	1950	University of Pennsylvania Press, Philadelphia	15·00
6.	Burgess (E W) and Locke (H J)	The family	1953	American Book Co., New York	15·00
7.	Dennis (L T)	Living together in the family	1934	American Home Economics Association, 620 Mills Building, Washington, D. C.	[illegible]
8	Duvall (E M)	Family living	1955	The Macmillan Co., New York	[illegible]
9.	Dyer (D T)	The family today	1950	University of Minnesota Press, Minneapolis	[illegible]
10.	Fleck (H), Fernandez (L) and Munves (E)	Exploring home and family living	1959	Prentice-Hall, Inc., Englewood Cliffs, New Jersey	[illegible]
11.	Foster (R G)	Marriage and family relationships	1950	The Macmillan Co., New York	[illegible]
12	Goode (W J)	The family	1964	Prentice-Hall of India Pvt. Ltd., New Delhi	[illegible]
13.	Grinstein (A) and Sterba (E)	Understanding your family	1957	Random House, New York	[illegible]
14.	Grooves (E R) Skinner (EL) and Swenson (S J)	The family and its relationships	1960	J. B. Lippincott Co., Chicago	[illegible]
15.	Hoeflin (R M)	Essentials of family living	1960	John Wiley & Sons, Inc., N. Y.	[illegible]
16.	Homans (G C)	The human group	1951	Routledge & Kegan Paul Ltd., London	[illegible]
17.	Kapadia (K M)	Marriage and family in India	1958	Oxford Univ. Press, Bombay	[illegible]
18.	Kenkel (William F)	The family in perspective	1960	Appleton-Century-Crofts, New York	[illegible]
19.	Levy (J) and Munroe (R)	The happy family	1938	McClelland & Stewart Ltd., Canada	10·00
20.	Masani (Minoo)	Our growing human family	1950	Oxford Univ. Press, Madras	5·00
21.	Moore (B M) and Leahy (D M)	You and your family	1953	D. C. Heath & Co., Boston	20·00
22.	Musgrove (F)	The family, education and society	1966	Routledge & Kegan Paul, London	21·00
23.	Rhodes (K) and Samples (M A)	Your life in the family	1959	J. B. Lippincott Company, Chicago	20·00

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12	Dema (I. S.)	Nutrition in relation to Agricultural production	1965	F. A. O.	10 50
13	Davadas (R. P)	Why leafy vegetables	—	Sri Avinashilingam Home Science College, Coimbatore-11	1 15
14.	Dupont (Jacqueline)	Dimensions of nutrition	1970	Colorado Associated University Press	36 00
15.	Fox (B. A.) and Cameron (A)	A chemical approach to food and nutrition	1961	University of London Press Ltd., Warwick Square, London	24 00
16.	Gopalan (C) and Vijayaraghavan (K)	Nutrition atlas of India	1971	National Institute of Nutrition I. C. M R., Hyderabad	10 50
17.	Hawley (E. E.) etc	The art and science of nutrition	1955	C V Hosby Company, St. Louis	22·50
18	Heinz	Heinz handbook of nutrition	1950	McGraw-Hill Book Company, Inc London	25 00
19.	Jelliffe (D. B)	The assessment of the nutritional status of the community	1966	World Health Organisation, Geneva	45 00
20	Kilander (Holger Frederick)	Nutrition for health	1951	McGraw-Hill Book Company, Inc New York.	18·00
21.	Krause (Marie, V)	Food, nutrition and diet therapy, Ed. 4	1966	W. B Saunders Company, Philadelphia	61·20
22.	Krause (H D)	Nutrition It's meaning, scope and significance	1969	Charles C. Thomas, U S. A.	64 00
23.	Martin (Ethel Austin)	Nutrition in action	1963	Holt, Rinehart and Winston, New York	38 50
24.	Matthews (Wndy) and Wells (Dilys)	Second book of food and nutrition	1968	Home Economics & Domstic Subjects Review, St James House, Kensington Spuare, London, W 8	21 00
25	Mcharen (D. S.) and Daghir (N. J)	6th Symposium on nutrition and health in the near cost.	1971	American University of Beirut	37·50
26	Mertiz (Walter) and Cornatzer (W. E)	Newer trace elements in nutrition	1971	Marcel Dekker Inc , New York.	183·75
27	Mudambi (Sumati, R) and McDivitt (Maxinc, E)	Human nutrition : principles and applications in India	1969	Prentice-Hall of India, Pvt. Ltd., New Delhi.	8·00

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24.	Scanzoni (J H)	Opportunity and the family	1970	The Free Press, New York	52·00
25.	Winch (R F) and McGinnis (R) *Ed.*	Selected studies in marriage and the family	1953	Henry Holt & Co., New York	25·00
26.	Wood (M W)	Living together in the family	1946	American Home Economics Association, Washington DC	15·00

NUTRITION, FOOD AND COOKERY

1.	Antia (F.P)	Clinical dietetics and nutrition	1966	Oxford University Press, New York	35·00
2.	Aykroyd (W. R) and Doughty (Joyce)	Legumes in human nutrition	1964	F. A. O.	20 00
3.	Aykroyd (W. R.)	The nutritive value of India Foods and the planning of satisfactory diets	1966	I. C. M. R., New Delhi	8·00
4.	Beaton and Mcttenry	Nutrition : A comprehensive treatice	1964	Academic Press, New York	
		Vol I	,,	-do-	155 ·70
		Vol II	,,	-do-	125 75
		Vol III	,,	-do-	124 00
5.	Bogert (L. Jean)	Nutrition and physical fitness	1960	W B. Saunders Company, Philadelphia	15 00
6.	Berg (Alan D)	Nutrition as a national priority : Lessons from the Indian experiment	1970	FAO/WHO	10 00
7.	Bourne (Geoffery H)	World review of nutrition and dietetics-Vol. 10	1969	S. Karger, Arnold-Bocklin Strasse, 25, 4000 Basel II (Switzerland)	150.00
		,, ,, Vol 12	1970	-do-	160 00
8	Brock (J. F)	Recent advances in human nutrition	1961	J & A Churchell Ltd., 104, Gloucester place, London, W I	20 00
9.	Chaney (Margarets)	Nutrition	1960	Houghton-Mifflin Company, New York	17·00
10.	Cooper (L)	Nutrition in health and disease	1968	J. B. Lippincott Company, Philadelphia	83 70
11.	Davidson (S) and Passmore (R)	Human Nutrition and dietetics, Ed 4	1969	E & S. Livingstone Ltd , London	110 50

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28.	Patwardhan (V N)	Nutrition in India	1961	Indian Journal of Medical Sciences, Bombay-4	15 00
29.	Pike (R. L) and Brown (M. L.)	Nutrition: An integrated approach.	1967	Wiley Eastern Private Ltd, New Delhi	15 00
30.	Proudfit and Robinson	Normal and therapeutic nutrition Ed. 13	1967	Oxford and I. B H Pub. Co., New Delhi	12·00
31.	Robinson (Corinne-H)	Fundamentals of normal nutrition	1968	Macmillan Company, New York	12·00
32.	Scrimshaw (N. S.) etc.	Interactions of nutrition and infection.	1968	World Health Organisation, Geneva.	67 50
33.	Sherman (Henry-C)	Essentials of nutrition	1957	Macmillan Company, New York	49 00
34.	Wilson (E. D.) etc.	Principles of nutrition	1965	Wiley Eastern Pvt. Ltd., New Delhi	11 00
35.	—	Practical guide to combating malnutrition in the pre-school child	1970	Appleton — Century — Crofts New York	22·00
		Food			
36.	Amerine (M A.) etc.	Principles of sensory evaluation of food	1965	Academic Press, New York	163·80
37.	Avinashilingam (T. S) *Ed.*	Nutritional Feeding in the fourth plan	1970	Govt of Tamil Nadu	5 00
38.	Aykroyd (W. R.)	Food for man	1964	Macmillan Company, New York	6 80
39.	Blix (Gunnar)	Food Cultism and Nutrition Quackery	1970	Almquist & Wiksells Boktryckeri Aktiebolag	37 50
40.	Christie (A. B.) Christie (M, C.)	Food Hygiene and Food Hazards	1971	Faber & Faber, 3. Queen Square, London	32·40
41.	Cox (Pat M)	Deep freezing:— A comprehensive guide to its theory and practice	1968	Faber & Faber 24, Russell Square, London	84·00
42.	Chichester (C O.) *Ed.* etc.	Advances in Food Research	1968	Academic Press, New York	8·50
43.	Crocker (Betty)	How to feed your family to keep them fit and happy	1972	Golden Press, New York.	27·75
44.	Cronan (M. L.) and Atwood (J. C.)	Foods in home-making	1965	Chas A Bennett. Co.. Inc., Peoria, Illinois	50 00

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45.	Devadas (R. P.) and Krishnamoorthy (S)	Food for all	1968	NCERT, New Delhi	2·85
46.	Devadas (R. P.)	Sathuvanu	1971	Govt. of Tamil Nadu	0·50
47	Devadas. (R. P.)	Kuzhanthaikallukku Palliyil Madhiya Unavum Kalvium	1970	Govt of Tamil Nadu	0·50
48	Devadas (R. P)	Nalam Tharum Chirunavu	1971	Govt of Tamil Nadu	2·00
49.	Duncan (A. O)	Food processing	1951	Turner E. Smith & Co, Atlanta	19·00
50.	Fisher (P) and Bender (A)	Value of Food	1971	Oxford University Press, London	13·00
51.	Fridthjob (John)	Encouraging the use of protein-rich foods	1962	F. A O.	8·00
52	Furia (Thomas, E)	Handbook of Food additives	1968	Chemical Rubber Co., Ohio-44128	176·25
53.	Girdharilal, etc.	Preservation of Fruits and Vegetables	1967	I. C. A. R. New Delhi	11·50
54	Gopalan (C), etc.	Diet atlas of India	1971	NIN, I. C M. R. Hyderabad	8·00
55.	Gopalan (C), etc.	Nutritive Value of Indian Foods	1971	-do-	5·50
56	Joslyn (Maynard A.)	Methods in Food analysis	1970	Academic Press. New York.	262·00
57.	Justin (Margaret M) etc.	Foods : An introductory college, course	1956	Houghton-Mifflin Co, Boston	10·00
58.	Klinger (J. D.) etc.	Mealtime manual for the aged and handicapped — Revised	1970	Essandees & Peavil, Ed., New York	67·50
59.	Kotschevar (Ltt) etc	Understanding food	1959	John Wiley & Sons, Inc., New York	47·71
60.	Liverton (Ruth, M)	Food becomes you	1960	Iowa State University Press, Ames Iowa	17·50
61	Lowenberg (Miriam, E) etc.	Food and Man	1968	Wiley Easter Pvt. Ltd., New Delhi	4·50
62.	Matz (Samuel, A)	Water in Foods	1965	The AVI Publishing Co. Inc, Westport, Conn	128·00
63.	McWilliams (Margaret)	Food Fundamentals	1966	John Wiley & Sons, New York	75·60
64.	Meyer (L. H)	Food Chemistry	1960	Reinhold Publishing Corporation, New York.	25·00
65.	Oerke (Bees, V)	Mealtime	1960	Chas A Bennett Co Inc,. Peoria, Illinois	38·00

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66.	Pearson (David)	The Chemical analysis of Food	1970	J & A, Churchill, 104, Gloucester Place, London.	£ 6
67	Peckham (Gladys, C)	Foundations of food preparation. Ed. 2	1969	Macmillan & Co., London	81·00
68.	Pyke (Magnus)	Food and Society	1968	John Murray, London	19 80
69.	Pyke (Magnus)	Synthetic Food	1970	-do-	40·50
70.	Sapeska (N)	Food Pharmacology	1969	Charles C. Thomas, U. S. A.	70 00
71.	Sherman (H. C.)	Chemistry of Food and Nutrition	1952	Macmillan Co., New York	23·00
72.	Sinclair (H. M) and Hollingsworth (D F)	Hutchison's food and the Principles of nutrition	1969	Edward Arnold (Pub) Ltd., London	108·00
73.	Smith (A. J)	Caring for your food	1968	Johnwiley and Sons, New York	9·45
74	Smith (D. B.) and Walters (A. H.)	Introductory Food Science	1967	Classic Publication Ltd., London, No. 16	10 00
75.	Sri Lakshmi (K) etc.	Food and Health	1970	NIN, I. C. M. R., Hyderabad.	6 00
76	Stanley (L) and Cline (J. A.)	Foods: Their selection and preparation	1950	Ginn and Company, New York	25·00
77.	Stevenson (G. T.) and Miller (C)	Introduction to Food and Nutrition	1960	John Wiley & Sons, Inc , New York.	25·00
78.	Swaminathan (M) and Bhagavan (R. K.)	Our Food	1960	Ganesh & Co. Pvt Ltd. Madras-17	3·00
79.	Taylor (Joan)	Bacterial Food Poisoning	1969	The Royal Society of Health	28 00
80.	Watt (Bernice, K) & Merril (Annabell)	Composition of foods: Raw processed, prepared	1963	U S Department of Agriculture, Washington, D C.	12·00
81	White (Ruth Bennett)	You and Your Food	1960	Prentice-Hall. Inc , Englewood Cliffs, N. J.	8·96
		Cookery and Recipes			
82	Baker (Ivan)	Complete Vegetarian recipe Book	1954	G. Bell'& Sons Ltd	7·12
83.	Bloom (Ursula)	Cookery	1949	W & G. Foyle Ltd 119-125, Charing Cross Road, London, WC 2	4 00

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84.	Cavanagh (Ursula, M)	The Whole Food Cookery Book	1971	Faber & Faber Ltd., 13, Queen Square, London	31·50
85.	Cavanagh (Ursula, M)	Cooking and Catering the Whole and Food way	1970	-do-	25·00
86.	Chase (Emily)	Salad Book	1957	Lane Publishing Co., Menlo Park, California	15·00
87	Dissanayake (Chandra)	Ceylon Cookery	1968	Metro Printers Ltd., Ceylon	20·00
88.	Fitch and Francis	Foods and Principles of Cookery	1948	Prentice-Hall, Inc., New York	15 00
89.	Kagava (Aya)	Japanese Cook Book	1962	Japan Travel Bureau	25 00
90.	Livinson (L. L.)	Complete Book of Low Caloric Cooking	1956	Hawthornbooks, Inc.. New York	20 00
91.	Lowe (Belle)	Experimental Cookery	1955	John Wiley & Sons, Inc., New York	15·03
92.	Malhan (Surjeet)	Indian Cookery	1963	R & K Publishing House, L4 Connaught Circus, New Delhi	15·00
93.	Maniyan (R. V. S.)	Arusuvai Amutham	1972	M s Lalvani Brothers, Madras-2	5·00
94.	Meenakshi Ammal (S)	Cook and See	1968	Meenakshi Ammal Publications, 99, Ramakrishna Movent Rd. Madras-28	5 00
95.	Patten (Marguerite)	Adventures in Cookery	1967	Ginn and Company Ltd , 18, Bed ford Road, London, W C. 1	13·00
96.	Patten (Marguerite)	Learning to cook	1958	Panbooks Ltd , London	3 00
97.	Pollock (A. J.)	Approach to cookery	1962	MacMillan & Co., Ltd.	4·40
98.	Premila Lal	Premila Lal's Indian Recipes	1968	Faber & Faber, 24, Russell, Square, London	27·00
99.	Seton (Dora)	Advanced Cookery	1963	Evans Brothers Ltd., London	10 00
100.	Small (Marvin)	The special diet cookery	1952	Greystone Press, 100, Sixth Avenue, New York.	12 00
101.	Slee-Smith	You can cook its fun	1967	Mills & Boon Ltd , London	36 00
102.	Thangam, E. Philip	Modern Cookery, Vol. 182	1965	Orient Longmans Ltd , New Delhi	52 00
103.	Vizvari (Mariska)	Treasure trove of Hungariain cookery	1961	Corvina Budapest	6·00
104.	Walker (Janet)	Vegetarian Cook book	1959	Neville, Spearman, London	21·00

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		HOME (HOUSEHOLD) MANAGEMENT			
1.	Adams (C)	Housekeeping after office hours	1953	Harper & Brothers, New York	21·00
2.	Barnes (A) *Ed.*	Home management Vol. I & II	1969	George Newnes Ltd., London	43·00
3.	Burman (W), Pleydell Bouverie (M) and Urquhard (M I)	Housecraft	1962	Macmillan & Co. Ltd., London	3·94
4.	Cocker (K M)	Every house a home	1963	J. M. Dent & Sons, Ltd., London	6·83
5	Craig (Elizabeth)	Keeping house with Elizabeth Gaig	1936	Collins, 48 Pall Mall	35·00
6	Craig (H T)	Thresholds to adult living	1962	Chas A. Bennett Co. Inc., Illinois	39·00
7.	Craig (H T) & Rush (O D)	Homes with character	1962	D. C. Heath & Co., Boston	30 00
8.	Creese (A)	Safety for your family	1968	Mills & Boon Ltd., London	25·00
9.	Creese (A)	The young homemaker	1965	” ”	18 00
10.	Devadas (Rajammal P)	Why study Home Science		Sri Avinashilingam Home Science College, Coimbatore	1 00
11	”	Manayiyal	1950	” ”	5·00
12.	”	The meaning of Home Science	1958	” ”	2·00
13	”	Kutumba kalai	1960	Parnilayam, Madras	2·50
14	” *Comp :*	Text book of Home Science	1959	ICAR, New Delhi	22 50
15.	Davidson (P.)	Home Management	1960	B. T. Batsford Ltd , London	28 00
16	Dodd (M)	America's Homemaking book	1957	Charles Scribner's Sons, New York	35·00
17.	Faulkner (R) and Faulkner (S)	Inside today's home	1960	Holt, Rinehart and Winston Ltd., New York	56 00
18	Fitzsimmons (C) & White (N)	Management for you	1958	J. B Lippincott Co , Chicago	20 00
19.	Gilbreth (L M), Thomas (OM) & Clymer (E)	Management in the home	1959	Doss, Mead & Co., New York	35 00
20.	Goodyear (M R) & Klohr (M C)	Managing for effective living	1954	John Willey & Sons, Inc., London	28 00
21.	Greer (CC)	Your home and you		Allyn and Bacon	35 00

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22.	Gross (I H) and Crandall (E W)	Management for modern families	1954	Appleton-Century-Crofts, Inc., New York	27·50
23.	Gross (I H) and Lewis (M E)	Home management	1938	F. S. Crofts & Co., New York	15·00
24	Haines (R E), *Ed.*	The homecrafts handbook	1948	D. Van Nostrand Co. Inc., Torouts	35·00
25	Hardy (K)	How to make your house a home	1947	Funk & Wagnalls Co, New York	30 00
26.	Harris (F L) & Kauffman (T E)	Young folks at home	1953	D. C. Heath & Co., Boston	25·00
27.	Harris (J W), Tate (M T) & Anders (I A)	Every living	1950	Houghton Mifflin Co., Boston	70·00
28.	Hatcher (H M) & Andrews (M E)	Adventuring in home living	1954	D. C. Heath & Co., Boston	27·00
29.	Holt (J M)	Housecraft science	1956	G. Bell & Sons Ltd., London	12·00
30.	Humphrey (H) *Ed.*	Woman's home companion household book	1950	P. F. Collier & Son Corporation, New York	25·00
31.	Jones (E G) & Burnham (H A)	Junior homemaking	1958	J. B. Lippincott Co., Chicago	40·00
32.	Jordan, Ziller & Brown	Home and family	1935	The Macmillan Co., New York	18 00
33.	Joslin (I C) & Taylor (P M)	Everyday domestic science	1963	Macmillan & Co Ltd., London	23·63
34.	Kaye (A M)	A shorter course in housewifery	1946	J. M. Dent and Sons, Ltd., London	4·00
35	Kennedy (J C) etc.	Modern homes and homemaking	1958	Odhams Press Limited Long Acre London	16·80
36.	Kennedy (Kate)	The science of homemaking	—	Thomas Nelson & Sons Ltd., London	15·00
37.	Laitem (H H) & Miller (F S)	Experiences in Homemaking	1960	Gim and Co, Boston	50·00
38	Lewis (D S) Burns (J O) & Segner (E F)	Housing and home management	1961	The Macmillan Co., New York	15·00
39.	Lewis (D S) etc.	Tomorrow's homemaker	1960	The Macmillan Co., New York	30 00
40.	McDermott (I E) & Nicholas (F W)	Homemaking for teen-agers	1954	Chas A. Bennett Co. Inc. Peoria, Illinois	18·00

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41.	May (E E), Waggoner (NR) & Boettke (E M)	Homemaking for the handicapped	1966	Dodd. Mead & Co , New York	53 00
42.	Needham (M A) and Strong (A G)	Better homes	1970	Oxford University Press, Calcutta	7·50
43.	Nickell (P) and Dorsey (J M)	Management in family living	1970	Willey Eastern Pvt. Ltd , New Delhi	15 00
44.	Reiff (F M)	Steps in home living	1966	Chas A Bennet Co. Inc.. Peoria, Illinois	18 00
45.	Raines (M)	Managing living time	1964	Chas A. Bennet Co. Inc. Peoria, Illinois	25 00
46.	Sanderson (I)	Science Applied to housecraft	1956	Edward Arnold (Publishers) Ltd., London	8 00
47.	Shultz (Hazel)	Making homes	1931	D Appleton-Century Co , New York	30 00
48.	Soundararaj (Stella)	A Text book of household arts	1963	Orient Longmans, Bombay	6 00
49.	Starr (M C)	Management for better living	1956	D. C. Heath & Co , Boston	40 00
50.	Steidl (R E) & Bratton (E C)	Work in the home	1968	John Willey & Sons, New York	74 63
51.	Susheila Ram	The happy home	1953	The Indian Women Writers Cooperative Publishing Society, New Delhi	10 00
52.	Young (G M)	Better living	1945	Co-ordinating Committee of the Alfred P. Sloan Foundation Inc., New York	10 00
		HOUSING			
1.	Agan (Tessie)	The house	1956	Oxford & IBH Publishing Co., New Delhi	10·00
2.	Carter (D G) Hinchcliff (K H)	Family housing	1949	John Wiley & Sons, Inc., New York	32 00
3	Deshpande (R S)	Build your own home	1964	United Book Corporation, Poona	15·00
4.	,,	Modern ideal homes for India	1965	,, ,,	20 00
5	Foote (N N) etc.	Housing choices and housing constraints	1960	McGraw Hill Book Co. Inc.	25·00
6	Kirkpatrick (W A)	The house of your dreams	1958	,, ,,	28 00
7.	Malkin (R S)	How to landscape your own house	1955	Harper and Brothers, New York	30 00
8	Rodwin (L)	Housing and economic progress	1961	Harvard Uni Press & The Technology Press, Massachusetts	7·50
9.	Seymour (R G) *ed*	Decisions before the house	1961	Guideways, Inc., Illinois	6 75

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		RELATED ARTS			
1.	Arms (J T) and Arms (D. N)	Design in flower arrangement	—	Odhams Press Ltd. Long Aere, London	2·75
2.	Barraelough etc.	Practical home decorating and repairs	—	Odhams Press Ltd., London	16·00
3	Better homes & Gardens	Flower arrangement	1965	Meredity Pub Co., U S. A.	40·00
4	Brandt (M L) & Kraft (M)	Book of home decoration	1957	McGraw Hill Book Co , London	25 00
5.	Bushey Donald J.	Guide to home landscaping	1950	D. Van Nostrand Co. Inc., New Jersey	45 00
6	Clement (Julia)	First steps with flowers Flower arranging for beginners	—	Galgotia E. D. & Sons, New Delhi	6·00
7	Collins (A T)	Decorating your home	1964	Newnes, London	2·80
8.	Dercony (May)	Complete book of interior decoration	1956	Greystone Press, New York	50 00
9.	Faulkner etc.	Art Today	1956	Holt. Rinehart and Winston N. Y.	50 00
10.	Gardner (Helen)	Art through the ages	1959	C Bell & Sons. Ltd., London	60·00
11	Goldstein & Goldstein	Art in everyday life	1954	Oxford & IBH Pub. Co., New Delhi	12·00
12.	Grice (H L)	Interior decorating simplified	1960	Pageant Press, Inc.	30 00
13.	Goodson (Bell)	Home decorating	—	Paul Hamlyn, London	8·00
14.	Grister Dorothy W	Design for flower arrangers	1959	D Vannostrand Co. Inc., New Jersey	60·50
15.	Gunn (L M)	Table Service and decoration	1950	J. B. Lippincott Co., Philadelphia	20 00
16.	Halsey (E T)	Book of interior decoration	—	Ladies Home-Journal, London	55·00
17.	Ikenobo (Senei)	Best of Ikebana. Ikenobo school	1962	Shufunotomo Co. Ltd. Tokyo, Japan	40·00
18.	Jakway (Bernard, C)	Principles of interior decoration	1962	Macmillan Company	20 00
19.	Li (H L)	Chinese flower arrangement	1959	D. Van Nostrand Co. Inc., Princeton, New Jersey	50·00
20	Ohara (Houn)	Best of Ikebana, Ohara school	1962	Shufunotomo Co Ltd., Tokyo, Japan	40 00
21.	Rogers (Joyce)	Flower arranging	1964	Paul Hamlyn, London	12·00
22.	Sparnon (Norman)	Guide to Japanese flower arrangement	1969	Oxford & IBH Publishing Co , New Delhi	20·00
23.	Teshingahara (Sofu)	Best of Ikepana Sogestsu school	1962	Shufunotomo Co. Ltd , Tokyo, Japan	40·00
24.	Trilling (Mabel B)	Design your home for living	1953	J. B. Lippincott Co., New York	22·00
25.	Wanner (E S)	Art, an every-day experience	1963	Harper & Brothers, New York	35·75

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		TEXTILES AND CLOTHING			
1.	A. H. E. A.	Textile Hand book	1962	American Home Economic Association	6·00
2.	Barve	Complete Textile encyclopaedia	1967	D. B Taraporevala Sons & Co. Pvt. Ltd. Bombay-1	25·00
3.	Basu (T. N.)	Tant-O-Rang: A Book of Textile Technology	—	T. K Basu, 50, Sarat Chatterjee Road, Calcutta-28	16·00
4.	Birel (Verla)	Textile Arts	1953	Harpers Home Economics	7·00
5.	Booth (J E)	Principles of Textile Testing	1968	Heywood Books, London	76·00
6.	Brown (Harriet)	Hand weaving for Pleasure and Profit	1963	Harpers Berlin Press, London	5·00
7	Chatlop adhyaya (K)	Carpets and Floor coverings of India	1969	Taraporevala Sons & Co Pvt. Ltd., Bombay	52·50
8.	Cheetam (R C)	Dyeing Fibre Blends	1966	Vannostrand Co Ltd., London	99·00
9.	Dantyagi (Susheela)	Elements of Textiles and their care	1964	Orientlongmans, Bombay	12·50
10.	Dantyagi (Susheela)	Fundamentals of Textiles and their care	1964	”	12·50
11.	Deulkar (Durgu)	Guide to household textiles and laundry work	1967	Atma Ram & Sons	8·00
12.	Evans (M)	Fundamentals of clothing and textiles	1967	Prentice-Hall, Inc., New York	65·00
13.	Evans (M)	Story of Textiles	1967	Little Brown Co	4·50
14.	Flynn (Dorris)	Costumes of India	1971	Oxford and IBH Publishing Co., Bombay	50·00
15.	Grover (E B) & Hamby (D S)	Handbook of textile testing and quality control	1960	Wiley Eastern Ltd.	26·50
16.	Hall (A J)	Standard handbook of textiles	1969	National Trade Press Ltd, London	12·00
17.	Lomax (James)	Textile testing	1956	Longmans Green & Co, New York	24·36
18.	Potter (M D)	Fiber to Fabric	1959	McGraw-Hill & Co.	7·00
19.	Padgett (Rose W)	Textile Chemistry and testing in the laboratory	1956	Burgess Pub Co., Minnesota	10·00
20.	Skinkle (John H)	Textile testing	1959	Chemical Pub. Co.	7·00
21.	Trotman (E R)	Dyeing and chemical technology of textile Fibres	1970	Griffin, London	15·00
22.	Wingate (B Isabel)	Textiles fabrics and their selections	1964	Prentice Hall Inc, New York	12·00

1	2	3	4	5	6
		DRESS MAKING			
1.	Bane (Allyne)	Tailoring	1968	Mc Graw-Hill Book Co.	59·62
2	Baxter (Laura)	Our clothing		Lippincott Co., Philadelphia	8·00
3.	Carson (Byrta)	How you look and dress		McGraw-Hill Book Co., Inc.	10·00
4	Doongagi (S) & Deshpande	Basic process and clothing construction	1968	New Raj Book Depot, New Delhi	11·50
5	Erwin (Mabel)	Clothing for moderns	1960	Macmillan and Co.	15·00
6	Evans (Mary)	Costume thro' the ages	1950	Lippincott Co., Philadelphia	25·00
7.	Griffith (E)	Needle craft hand book	1958	George G. Harry & Co. Ltd . London	1·00
8.	Hills on Lynn	Practical home Dressmaking	—	Odams Press Ltd.	11·25
9	Hollen (N R)	Flat paltern methods	1961	Burgess Publishing Co . Minnesota	31·75
10.	Joyce (Phyllis)	What they wore	1969	Union Label Department, New York	1·00
11	Kanthimathi Kumar	Clothing for the home	1962	F. A. O.	3·00
12.	Mansfield (E A)	Clothing construction	1953	Houghton Mifflin Co., Boston	10·00
13	Savitri Pandit	Manual of children's clothing	1967	Orientlongmans Ltd., Madras	6·00
14.	Hanney (E) and Byetl (J P)	Modern home Laundry work	—	Dents Sons	6·00
15.	Mellan (I) & Mellan	Removing spots & stains	—	Chemical Pub. Co., New York	30·00

HEALTH, HOME NURSING AND FIRST AID

Health

1.	Anderson & Langton	Health principles & practice	1961	C. V Mosby Company	43·00
2.	Baver (W W)	Today's health guide	1965	American Medical Association	40 00
3.	Bhatia (B) and Suri (P N)	Elimentary hygiene	1957	Orient Longmans Pvt. Ltd.	2·50
4.	Dalrymple (W)	Foundations of health	1959	Allyn and Bacon, Inc.	6·50
5.	Dielh (H S)	Elements of healthful living	1955	McGraw-Hill Book Company, Inc. New York	30 00
6.	Dielh (H S)	Text book of healthful living	1960	McGraw-Hill Book Co. Inc. New York	30 00
7.	Etheredge (M L)	Health facts	1953	W. B. Saunders Co Philadelphia	30 00

1	2	3	4	5	6
8.	Fishbein (Morris)	The modern family health guide	1959	Doubleday & Co. Inc. Garden City, N. Y.	80 00
9.	Gibson (John)	Health· personal and communal (A short hygiene for nurses)	1959	Faber and Faber, 24. Russell Square London	24·00
10.	Godman (A)	Health science for the tropics	1962	Longmans, Greens Co Ltd	10·00
11.	Hughes (E. T. D.) & Marshall (P T)	Tropical health science	1967	Cambridge University Press	90·00
12.	Jelliffee (D B)	Child health in the tropics	1962	Edward Arnold (Pub.) Ltd. London	7 20
13.	Lamont (J C.)	Health and the home	—	E. J. Arnold & Son Ltd. Glasgow Belfast, London	2·00
14.	Miller and Miller	Good health: Personal and Community	1960	W. B Saunders Company, Philadelphia	38·75
15.	Pearce (Evelyn)	Environmental health and hygiene	1964	Faber and Faber, 24, Russell Square, London	10·00
16.	Prescott (S C) and Horwood (M P)	Sedgwick's principles of Sanitary science and public health	1935	Macmillan Co New York.	15·00
17.	Raju (D S)	Guide to health	1963	Current technical literature Co. Pvt. Ltd Bombay	6 50
18.	Schifferes (J J)	Essentials of healthier living	1960	John Wiley & Sons, Inc, New York.	35 00
19.	Smiley and Gould	Your health	1951	Macmillan Co. New York	25·00
20.	Thomsom (C P)	Better health	1954	SPCK, Delhi	8·00
21.	Williams (Jennie)	Family health	1945	J B Lippincott Co. New York.	25·00
		Nursing			
1.	Fuerst (E V) and Wolff (L)	Fundamentals of nursing	1959	J. B Lippincott Co. Philadelphia	15 00
2.	Gill (Helen Z)	Basic nursing	1957	Macmillan Company, New York	12 00
3.	Hayes and Gazaway	Human relations in nursing	1955	W B. Saunders Company, Philadelphia	20 00
4	John Ambulance Association	Nursing	1963	St John Ambulance Association, 1, Red Cross Road, New Delhi	5 00
5.	Long (Alma)	Home health and nursing	1943	Appleton-Century Company, New York	10 00
6.	Lovely (Evelyn)	The nursing of sick children	1951	E & S Livingstone Ltd. 16 & 17 Teviot Place Edinburgh	6·00

1	2	3	4	5	6
7.	Riehl (C Luise)	Family nursing and child care	1961	Chas. A Bennett Co. Inc. Peoria, Illinois.	6.00
8.	Thompson & Dakin	Simplified nursing	1951	J. B. Lippincott Company, Philadelphia	20.00
		First Aid			
1.	American Red Cross	First aid textbook	1957	Doubleday & Co. Inc. Garden City, New York	5.00
2	Green (S L) & Rothenberg (A B)	Manual of first aid for mental health	1955	Julian Press	30.00
3.	St. John Ambulance Association	First aid	1965	St. John Ambulance Association, India 1, Red Cross Road, New Delhi.	5.00

12. *Other facilities*

The other facilities to be provided depend on the amount of money available. The money set apart must be planned to meet the minimum requirements of interior decorations, music and entertaining guests.

13. *Recurring budget*

The Home Science department must be allotted adequate budget for meeting the recurring expenditure on foods, textiles, materials and maintenance. Depending upon the number of periods allotted and the number of pupils, a budget of Rs. 1000 may meet the needs.

14. *Records*

Instructions with regard to lending, returning and replacement of equipment and supplies must be clearly stated. The teacher should maintain the following records effectively:

(a) Stock or inventory for non-consumable articles.
(b) Contingencies.
(c) Books and other publications.
(d) Teaching aids.
(e) Articles prepared or made out of the contingencies.
(f) Special activities such as study tour, exhibition.

Entries in the records should give:

(a) Up-to-date position with regard to quantity and quality.
(b) Adequacy or otherwise to meet the needs of the pupils.
(c) Direction for purchases in the future, and
(d) Data for analysis and comparisons of costs when required.

Evidence of success of the home science department

The extent of success of management of the Home Science department can be determined through the use of a check list suggested below:

A. *Orderliness in the department*

1. Are the equipment in the places allotted ?
2. Are the provisions kept in labelled containers ?
3. Are the containers arranged systematically ?
4. Are the furniture in order ?
5. Are the contents in the cupboards and shelves arranged neatly ?

B. *Cleanliness in the department*

1. Are the floors clean ?
2. Are the ceilings free from cobwebs ?
3. Are the walls clean and without stains ?

4. Are the surface of equipment and furniture free from dust?
5. Are the linen clean?

C. *Repairs and upkeep*

1. Are the floors and the walls in good condition?
2. Are the roofs leak-proof?
3. Are the water taps free from leaking?
4. Are the drainage systems free from blocking?
5. Are the metallic fittings free from rust?

D. *Working of equipment*

1. Are the equipment sufficient?
2. Are the equipment within reasonable cost?
3. Are the equipment in working conditions?
4. Are the working of the equipment within the economic means of families?
5. Are the equipment and supplies properly stored when not in use?

E. *Maintenance of records*

1. Is the stock register maintained up-to-date?
2. Are the daily accounts recorded promptly?
3. Are the papers, illustrative materials and charts filled systematically?
4. Are the business procedures consistently followed in the departments?

F. *Storage*

1. Is the storage for equipment and provisions adequate?
2. Are the storage facilities functional and easy to reach and clean?
3. Is the space well utilised?

G. *Teacher-pupil cooperation*

1. Do pupils and teacher plan co-operatively the management of the department?
2. Are the pupils assigned responsibilities for managing the department?
3. Do the parents co-operate with the department?
4. Do the pupils bring resource material from their homes for the class?

H. *Home-like setting*

1. Are the facilities in the department in keeping with the economic levels of the families in the community?

2. Has the department the necessary furniture and equipment that are used by most homemakers ?
3. Are the furniture arranged to give a home-like setting ?
4. Do the colours and flowers make the department attractive ?

ASSIGNMENTS

1. *Choose a school and describe its conditions and suitability to plan a Home Science department.*
2. *List the minimum equipment you will suggest to that school, based on availability and cost.*
3. *Choose a part of a room and show how you can use it flexibly to teach child care or interior decoration.*
4. *Evaluate the labour saving equipment in the Home Science department in a school.*
5. *List the books available in the Home Science department of any school and examine their suitability to secondary school pupils.*

REFERENCES

1. *Report of the Secondary Education Commission*, Ministry of Education, Government of India, New Delhi, 1953, p 23.

CHAPTER XIV

Evaluation

> *I know not anything more pleasant or more instructive than to compare experience with expectations or to register between idea and reality.*
>
> —SAMUEL JOHNSON

EVALUATION IS THE PROCESS of collecting evidence of learning or its absence, weighing the evidence carefully and arriving at a judgement of the quantum and quality of learning that has taken place.

Purposes of evaluation

Evaluation helps to discover the progress of the pupils and the teacher towards the desired outcomes and to find out, "How well the goal has been reached". For the teacher, evaluation is the measurement of the efficacy of her methods and teaching in terms of pupil development. It helps the pupils to assess their attainments, skills and the teachers' abilities. They know their standing in the class and diagnose their strengths and weaknesses. When evaluation is frequent, it is easier for the pupils to apply corrective measures to improve their weaknesses. The administrators find evaluation helpful to locate the effective teachers and the successes and problems in the programme and plan better for the future. Parents evaluate their children in terms of their abilities to translate the learnings from the school into home situations. Evaluation is thus an integral part of teaching and learning. It acts as an incentive to improve and needs to be focussed on the goals of the class as well as the learning expected to result from the teaching through the use of relevant techniques and instructional resources.

The three dimensions to any course in education are the objectives of the course, the learning experiences and the evaluation. Evaluation is intimately connected with the objectives of the course.

Teaching and evaluation should go hand in hand. For effective teaching-learning, evaluation must be a continuing process, planned at the beginning of each course and unit and carried through its completion. Everyday, in every period, the pupils' performance must be evaluated. Based on the results of such evaluation, the teacher can make decisions as to how to proceed further. Evaluation is the process of making judgment as a basis for future planning. It aids the teacher in judging how she is teaching and also how she can modify her methods and content. Pupils also come to know what progress they are marking, that is, to what extent they are achieving their goals and where and how improvements can be made.

For a long time 'examination' has been the only method for assessing pupils' progress. This narrow concept of examination has meant only the measurement of the pupil's mastery of the subjects through his memory power. Many teachers and heads of schools consider the process of evaluation and reporting pupil's progress as one of administering a series of tests and exercises at the conclusion of a term or year, marking them, adding up the marks and entering them on a card, familiarly known as the 'Progress report', to be taken home by the pupils and signed by their parents. This type of process is simple, quick and terminal in nature. But if evaluation is to be effective, it must be a continuous, co-operative and cumulative procedure, covering all aspects of the teaching-learning process as it influences the pupil towards reaching the goals set.

It is only recently 'examination' is being supplemented with other types of 'evaluation', 'assessment', 'measurement' and 'testing', indicating that the old concept of examination is fast changing. This change in the concept of examination is not isolated, but is a part of a bigger change in the philosophy and psychology of education during the past few decades. The goals of education were once the three R's. Now the goals are the all round harmonious development of the pupil's personality and his efficient adjustment to his environment.

Educational evaluation is the measurement of the growth and progress of pupils towards accepted objectives and values. The process consists of establishing objectives, collecting evidence concerning the pupils growth towards the objectives, assessing the effectiveness of the experiences and activities provided and the instructional methods used and revising the objectives and procedures in the light of the evidence and judgement. Thus evaluation helps to improve the objectives, the procedures, and the net results.

Good teaching is assessed in terms of the accepted objectives. Good testing procedures are those that are closely related to the objectives to be reached by pupils. The teachers' aim in the teaching and learning process is to change the pupils' behaviour or to reinforce already existing desirable behaviour. Thus a very important task for the teacher and the school is to determine what kinds of behaviour are desired and focus evaluation on appraising whether or not the educational activity has resulted in changes in behaviour and whether or not the changes are in the desired direction. In other words, when once the objectives of a school subject or the objectives of secondary education are accepted and clarified, the task of planning, teaching and testing procedures are undertaken simultaneously and systematically. The vital task of evaluation is to make all teaching and testing procedures objective-based.

The major steps in the evaluation process are :

A. Formulating the objectives.
B. Resolving objectives into specifications.
C. Providing learning experiences.
D. Measuring the attainments.
E. Modifying the objectives and methods in the light of the assessment.

A. FORMULATION OF OBJECTIVES

The first step in evaluation is the formulation of objectives for teaching a particular subject.

In teaching Home Science, the teacher tries to help pupils develop the following objectives:

1. Understand their role in their families and communities.
2. Learn the skills required for the art of living.
3. Relate the study of Home Science subjects to everyday problems:
    (a) Learn to use appliances in household work,
    (b) Use foods wisely towards giving balanced diets,
    (c) Plan and analyse budgets,
    (d) Enjoy working with children,
    (e) Differentiate textile fabrics,
4. Recognise and foster desirable relationships; and
5. Live creatively.

If Home Science teaching is to be effective, these objectives should be the beacon lights of the curriculum, to enable the teacher move from topic-based teaching, to objective-based teaching.

B. RESOLVING THE OBJECTIVES INTO SPECIFICATIONS

The next step after the formulation of the objectives is resolving the objectives into specifications or defining the objectives in terms of pupil behaviour patterns. Specific changes are to be brought about in the pupils as a result of the achievement of the objectives. The expected changes are expressed in terms of specifications or behaviour patterns. For example, the first objective stated above can be resolved into the following specifications ;

Objective : Understand the role of the pupil in the family and community.

Specifications :

The pupil:

1. recognises her place in the family.
2. perceives the duties to be performed in the family.
3. gives attention to the resources available to perform her duties.
4. locates the problems in carrying out the duties.
5. differentiates between resources which are similar.
6. recognises the skills necessary to solve the problems
7. recognises the components of the community which are vital to the realisation of the objective.
8. expresses quantitative relationships to the components; and
9. finds the usefulness of the family and community to her growth and satisfaction.

C. PROVIDING LEARNING EXPERIENCES

The experiences provided in order to bring about these changes in the pupils are called 'Learning experiences'. Learning experiences are, all the experiences a teacher employs and provides to help pupils achieve the objectives. Objective-based teaching and learning, both inside and outside the class-room, constitutes the learning experiences.

Learning is developing abilities in pupils. There are different forms of ability. They are developed through changes or growth in the behaviour pattern. Experience, is that which brings about the learning or the change. Experience is that activity which causes and produces change or growth in pupils. All the processes the teacher uses to bring about the changes are learning experiences.

D. MEASURE THE ATTAINMENTS

The fourth step in this sequence is to measure the attainment of the pupils in terms of the objectives set. The teacher must find out how far the objectives have been realised. This constitutes 'evaluation' in the educative process. The salient features in measuring the progress are:

1. What to evaluate ?
2. Who to evaluate ?
3. How to evaluate ?
4. When to evaluate; and
5. What for to evaluate ?

1. What to evaluate ?

From knowledge to application

The scope of evaluation is not only the pupils' academic achievement in his subjects of study but also personality consisting of attitudes, skills, sentiments, habits, knowledge in subject matter, abilities, behaviour, and manners. Even on knowledge of subject, the intellectual side of the pupil's personality, the emphasis is no longer on the information acquired by his memory, but rather on his ability to comprehend, reason and solve problems intelligently. Thus evaluation is no longer academic as in the past, but is becoming more and more comprehensive, assessing the individuals' whole personality.

2. Who to evaluate ?

From external to internal

The following are the appropriate persons to evaluate the school midday meal programme·

The teacher(s)
Headmistress/master
Pupils
Friends
Parents
Relatives
The community

In the past and even at present, the final examination is totally external, wherein neither the class teacher nor the headmaster, who knows the pupil examines him. Some unknown outside examiner is invested with the right and responsibility to examine the pupil finally.

In most of the developed countries all examinations including the final examination are 100 percent internal. The modern trend in India is also to give more and more weightage to internal assessment. In several recent educational conferences, 80 : 20, 50 : 50 ratios (external to internal) have been suggested. However there are some practical difficulties. The subjective element that comes to play in the teacher's judgement of the pupil may lead to some teacher misusing the power. Besides, the possible pressure of local leaders on the school teachers and headmasters, in the event of examinations becoming internal is a real danger. Despite these difficulties, there is a gradual shift in the system of evaluation from the external to the internal.

3. How to evaluate — Devices for evaluation ?

From subjective to objective

Evaluation should be always with respect to the goals The teacher needs to use proper tools and determine the extent to which the objectives have been realised. Evaluation too, like instruction, is objective-based and calls for the use of a variety of tools and techniques; and a judicious selection of these to suit the needs of varying situations. There are many devices such as (a) Tests on knowledge, and understandings to find out whether the learner knows the subject; (b) Performance ratings to find out the quality and extent of skills attained or the product resulting, (c) Attitude scales to find out people's opinion towards problems and social factors; (d) Interest checks — to find out the areas in which people are interested and how much, (e) Confidence to find out whether or not the work has been done by the person, and whether he can do the work in future independently and (f) Adoption of practices — check sheet to use before and after practice; (g) Essays; (h) Laboratory work; (i) Class reports; (j) Class notebooks and participation in school activities such as exhibition and group work. Whatever may be the device used, it must be reliable, accurate and valid. The teacher can employ many tools for evaluation — check lists, questionnaire, confidential records, score cords, reports from parents, pupils, health status, observation during home visits and pupils diary. The devices most commonly used for the purpose of evaluation of pupils' achievement are:

(a) Observation, interview, questionnaire, record and sociometry.

(b) Tests: Written, practical and oral.

(a) *Observation, interview, questionnaire and record* : Observation is the first and the most important tool for evaluating the pupil. Good observation is based not merely on impressions, but on the use of observation schedule, in which the report of the points observed is recorded for each and every pupil. An observation schedule is an exact record of what the pupil does in the class. The teacher interprets carefully the records for planning her lessons. Check lists help to pin-point and control observation.

Sociometry : Sociometry is a special set of concepts and methods devised to describe and measure various interpersonal relationships of pupils in a class or group chiefly those of attraction and repulsion, in quantitative and diagramatic terms. Sociometric methods can be normally used wherever interaction within a group, such as choosing, influencing, dominating and communicating is involved. The methods used in sociometry are based on choice. In studying interaction within a group, its members are asked to choose one or more persons with whom they would like to work or sit. Responses given are analysed and represented diagramatically in sociogram.

A sociogram consists of points connected by lines and arrows. Each point represents a person. The solid lines represent the liking and the broken lines represent rejection. Arrows indicate the direction of the choice.

The points in a sociogram are arranged so that the distances between them represent the degrees of positive attraction between the persons in the group. For instance, the points representing two persons who choose each other will be placed closer together than points representing two persons only one of whom chooses the other. These points in turn will be closer together than points representing two persons neither of whom choose each other.

The sociogram presents in easily describable form, a number of features of the sociometric structure. Some individuals are the focus of many solid lines. Such highly chosen persons are frequently referred to as sociometric stars. Some are relative isolates receiving few and making few. Cliques or subgroups can be identified from the clustering of points located closely together and having lines indicating mutual choice.

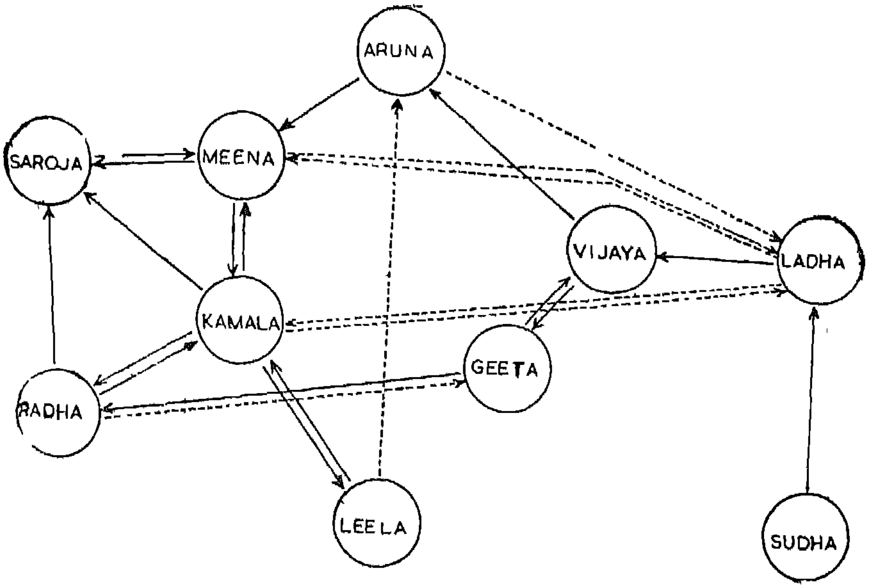


Figure shows how well liked is Kamala and how reserved and unsociable Sudha is.

These sociograms can give an insight into the social acceptance of the pupils and the group structure which can help the teacher choose the leaders, form groups or take measures to stop undesirable trends in group behaviour. They are useful for measuring pupil's personal and social adjustments leading to popularity of some and isolation of few.

(b) *Tests and examinations* : Test items can be classified into two categories, namely, the *Recall* and *Recognition* test items. The *Recall* type of test items consist of essay type of questions and short answer questions. They are generally written. Written tests are of many types classified according to the form of response called for They may be objective or essay type. In the objective type, there are problem tests, short answer tests, filling up the blanks, matching, multiple choices, true and false and completion tests. Under *Recognition*, certain items need to be recognised quickly. These can be oral also.

An item is *objective* if the complete scoring procedure is prescribed in advance of the scoring. Thus multiple choice, true-false and matching tests are usually objective. The examiner can draw up a scoring key which contains the right answer for each item on the test. When answered on special answer sheets, the answers can be scored even by computors, if available. Completion items are also to a large extent, objective but the tester usually cannot anticipate every possible answer that may be correct. *Essay* type and *short answer* types are subjective in nature. However, the subjectivity in essay items can be reduced by devoting sufficient time to constructing the questions, defining the direction and scope of the answer desired, preparing a tentative scoring key before hand and adopting techniques to reduce scoring errors.

The essay type is the easiest type to set and the most difficult to evaluate. While these essay type of questions are important and in the case of a few objectives, the only method of measurement, more and more 'objective' type of questions are coming into practice. The objective questions measure more precisely the knowledge or information possessed by the pupil. There is quite a variety in the objective type of questions such as the multiple choice, multiple response, reverse multiple choice, matching, filling blanks, completion, true-false, modified true-false, cluster true-false, true-false rating, score card, check sheet and ranking scale. The modern emphasis is that a variety of types of questions are used and that the type of question be determined by the nature of what is being tested. Descriptive account of each of the objective type of tests is given hereunder.

I. *Multiple Choice*

In the multiple choice type of test, several possible answers are listed for a question and the respondent is required to choose the correct answers. For example,

circle the correct answer :

When there is bleeding of the nose,

(a) Lay the injured in a prone position,
(b) Maintain upwards the head of the injured,
(c) Maintain downwards the head of the injured,
(d) Block the nose with the cloth.

II. *Multiple — Response*

In multiple response questions, the pupil is required to mark one or more correct answers. For example, circle the correct answers·

The methods suitable to cook rice, conserving the nutrients are·

(a) Absorption,
(b) Pressure cooking,
(c) Boiling and draining the cooked water
(d) Use of hay box.

III. *Reverse — Multiple Choice*

In Reverse — Multiple choices, all but one of the responses are correct. The pupil is required to select the wrong response. For example, circle the wrong answer :

A two year old needs training in,

(a) Intellectual activities
(b) Motor activities
(c) Sensory control
(d) Use of vocabulary.

IV. *Matching*

In matching type of questions, two (or more) sets of items are presented and the pupils are required to match relevant item together. Each response can be used only once. Therefore the same number of items should be given in each list of the set. Compound matching involves the matching of items from the stimulus list with more than one response.

Perfect Matching

Example :

Papaya	Iron
Guava	Vitamin D
Rickets	Thiamine
Anaemia	Carotene
Rice bran	Vitamin C

V. *Filling the blanks*

In filling the blanks type of test, the answers are given in the brackets for the blank space and the respondent is required to choose the correct answer.

For example, fill in the blank,

.... is rich source of Vitamin A.

(Papaya, ground nut, green leafy vegetables)

VI. *Completion test*

In completion type of test, the pupil is required to complete the incomplete sentences given.

For example, complete the following·

Anaemia can be diagnosed through...... ...

Vitamin C is one of the .. . . soluble vitamins.

VII. *True-False tests*

Some statements are given and the respondent is required to mark as True or False against the statements.

For example, mark the statements as True (T) or False (F).

Statements	*Marking*
1. Cotton is the 'king of fibres'	...
2. Rayon is known as artificial — silk because it has silk	...
3. Woolen clothing must be washed in hot water	...
4 The mark 'Sanforized' means that the material will shrink	..
5. Wood pulp is used to prepare cellulose	.

Modified True-False tests

Modified true-false items require thinking and elimination of the false items while selecting the true item. The false item may be crossed out or substituted with the correct item.

For example

1. Milk is a complete food
2. Milk is an incomplete food
3. Milk contains all the nutrients
4. Milk contains mostly iron

Cluster True-False tests

In order to test the completeness of the understanding of the pupil, an incomplete statement is given along with several items which may be true or false. The pupil will have to mark the correct item.

For example

Supplementary foods should be given to a six months old baby because :

1. Mother's milk may not satisfy the nutritional requirements of the baby.
2. The child needs to be trained to eat what elders eat.
3. The child should be weaned.
4. Milk is costly.

VIII. *True-False Rating*

In true-false rating, a wider range of choices is given and the pupil is required to decide along the statements given below:

T — Absolutely true; P. T. — Partially true
F — Absolutely false; P. F — Partially false

For example

	T	P.T.	F	P.F.
1. The child feels comfortable in smooth dresses ...				
2. All children should be disciplined at the age of one ..				
3. Synthetic fibres do not withstand frequent wearing ...				
4. Eating papaya may upset the digestive system ...				

IX. *Score Card*

Score cards are used:

(a) To evaluate the quality of performance of an individual or a group.
(b) To evaluate a product; and
(c) To set standards of quality for performance or product.

The score card may be devised by the teacher to evaluate the pupils' performance or by the pupils to evaluate the quality of their performance or judge their products. Scores are specified for various aspects of a performance or product on a card.

Example

Score card for evaluating a pupil who is making a blouse

Aspects	*Score*	*Score gained*
(a) *Performance:*		
Measurements correctly made	10	
Drafting in methodological	20	
Cutting material neatly	15	
Constructing the blouse accurately	20	
Orderliness in work	10	
Confidence in work	5	
(b) *Product:*		
Appearance of the stitched blouse	10	
Correct fitting of the blouse	10	
	100	

X. *Check sheet*

Check sheet or check list consists of a list of aspects to be checked. This may be used by the teacher and by the pupils, to evaluate a particular performance or product checking the different aspects.

For example

Check sheet to evaluate the preparation of carrot salad

Aspects	*Yes*	*No*
Selection of carrots is good		
Washing carrots befors use		
Pealing carrots only slightly		
Using a wooden board while grating		
Using a stainless steel grater		
Nothing is spilt on the floor		
Grating carrots smoothly		
Seasoning grated carrot properly		
Timing the preparation satisfactorily to reduce the interval before serving		
Salad is fresh		
Salad is good in appearance		
Salad is tasty.		

XI. *Rating Scale*

In rating scale scores are used or weightage assigned for each aspect given in a score card. Rating scale differs from score card in that, all points are rated on the basis of a scale of values. Instead of alloting scores, pupils may be rated on a three point or five point rating scale also.

Rating scale may also be used by the teacher or pupils to evaluate a performance. It is very useful for self evaluation.

For example

Rating scale for evaluating a room arrangement

	Fully	Partially	Not at all
Arrangement suited to the purpose			
Selection of items is relevant to the purpose			
The items have harmony in unity			
Principles of design have been applied			
Arrangement are pleasing to the sight			
Arrangements are conducive to comfortable movement			
Arrangements have been done cutting down costs			
Arrangements express originality and resourcefulness			

The rating may be considered as such or weightage may be given for the rating.

For example

For ' fully '	5 points
For ' partially '	3 points, and
For ' not at all '	0 point

The total of the points scored will constitute the final score.

Objective or short answer questions are more specific types of questions. A great deal of imagination and ingenuity are needed in selecting good questions.

A good test administered in a proper way will lead to complete objectivity. Before setting any question paper, the teacher needs to list the behaviour changes expected among the pupils and then look into the content, choice of types of items, proper administration of the test, scoring and interpretation. A good test construction programme includes all these aspects.

The following formula helps to find out the score:

$S = R - W/n\text{-}1$

where S — Score
R — Number of questions rightly answered
W — Number of questions wrongly answered
n — Number of choice included

There are generally three main defects in the questions set in educational institutions:

a) The questions are not based on clear cut objectives and/or learning outcomes.
b) Content sampling is inadequate: Questions are not distributed over the whole course; and
c) Questions suffer from subjectivity in scoring. Scoring is influenced by personal bias and opinion.

In order to overcome these defects, an outline prepared in advance pinpointing the content and the specific learning outcomes to be examined will be helpful. The test items can be prepared to cover the whole course or all the specific units assigned for that particular test. These precautions are necessary to make the tests more reliable and valid. Such an outline may be drawn up in the form of a two dimensional chart, ability-wise and content-wise. A chart or blue print so prepared gives an analysis of content area and objective covered, according to the weightage decided in anticipation. On the basis of such a blue print, test items can be framed in specific terms, giving clear instruction as to how each item is to be answered.

Pupils' performance in tests gives a quantitative assessment of the achievements of the individual pupil in terms of the knowledge gained. It is useful also for ranking and grading pupils. It gives valuable evidence of the inadequacies in instruction, drawbacks in lesson planning and ultimately in the formulation of the objectives themselves. The effectiveness or otherwise of the methods and teaching used is also assessed.

In the problem type test, pupils have opportunities to think and reason out the answers. For instance, the teacher displays a variety of foods and requests the pupils to select an adequate diet from them, or she may give some coloured papers and request the pupils to suggest suitable colour combinations.

In evaluating practical work, the teacher should have techniques to evaluate the different aspects of the practical work from various angles during the laboratory period. The score card given below will be helpful in a foods class:

	Very good	Good	Fair	Below average
	3	2	1	0
Selection of right articles.				
Starting without hesitation.				
Methods used.				
Evidence of planning menus.				
Actual preparation of food.				
Serving of food.				
Orderliness in work.				
Manners.				
Cleaning up.				
Tests of the preparations.				

This type of evaluation helps the pupils and teachers to know their performance at every stage and improve their methods when needed.

4. When to evaluate ?

From terminal to continuous

Evaluation should be from the beginning to the conclusion and the follow up. The final examination which comes at the end of the year or the course, makes the pupil negligent during a larger part of the course and 'wakes him up' towards the end. Then comes the tension between unduly intense work and the fear as to the uncertainty of the outcome. The modern trend is to spread evaluation through the course and not heap it at the termination. In this continuous evaluative process weightage is given to periodical tests, class assignments and other activities which bring out the capabilities of pupils. A cumulative record containing information about the continuous progress of the pupil is used for the purpose of evaluation.

5. Evaluation — what for ?

From single purpose to multiple purposes

Evaluation, instead of 'passing a judgement' on the pupil, to 'pass' or 'fail' him, is conducted for a variety of other reasons also. A good teacher uses certain evaluative tests before starting a particular course to know the present position of her pupils, their strengths and weaknesses. This is called 'diagnostic' testing. She uses the tests also to find out the effectiveness of her teaching, besides the learning of the learner.

Teacher's record about pupil

Height, weight, physical data
Marks
Attendance

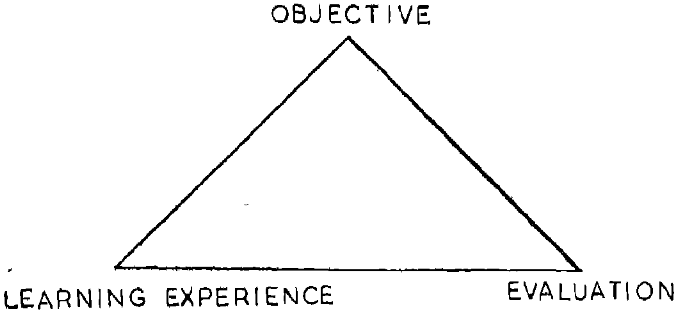
Extra-curricular activities : Sports
Social service
Debate
Hobbies
Leadership

Attitudes towards — classmates, teacher and school
Economic status
Any special problem
Character
Progress

E. Modification of Objectives and Methods

The last step would be to modify the objectives, teaching techniques and framing of questions in the light of the pupil's attainments, which will ultimately help in establishing the right kind of coordinated relationships between objectives, instruction and evaluation.

Wherever there is an objective, there should be a corresponding testing procedure for that objective. Similarly an educational objective will lead to corresponding instructional procedure. This inter-relatedness between the objectives, learning experiences and testing is shown diagramatically by the following figure.



What is more important in evaluation than the devices and techniques used ? It is the characteristics of the scientific method.

Scientific appraisal should have:

1. Validity
2. Reliability
3. Continuity
4. Diagnostic quality
5. Motivational quality

6. Objectivity
7. Practicability, and
8. Simplicity

1. Validity

Validity is the extent to which the device measures what it is supposed to measure.

2. Reliability

Reliability suggests the extent to which the test can be trusted to give the same results when repeated or when different forms are used.

3. Evaluation is continuous and cumulative

Evaluation is not merely a device to be used at the end of a lesson. It goes on minute-by-minute, throughout each lesson.

4. Evaluation is diagnostic

Evaluation procedures can supply the teacher with considerable diagnostic data about individual pupils in her class which help her identify the strengths, weaknesses and interests of every pupil.

5. Evaluation appraises achievement and provides motivation:

Evaluation gives the teacher insight into how well the pupils are learning. By using skillfully such data further learning can be motivated by:

(a) Setting realistic goals and providing data concerning their progress towards the goals.
(b) Making the pupils active partners in the teaching-learning activity, rather than a passive absorber of information.
(c) Demonstrating to the pupil that progress has been registered to help him attain satisfaction and desire to learn further.
(d) Guiding pupils to become increasingly self-directed.
(e) Showing pupils that the teacher really cares about their progress.

6. Objectivity

Evaluation should be free from bias or prejudice. It should not be based on unsupported opinion or wishful thinking.

7. Practicability

Evaluation should be practical. To get values of results vs. efforts; to get information in terms of inputs of time, cost, abilities vs. benefits.

8. Simplicity

Evaluation should be simple, clear, precise, easy to use, easy for people to understand and easy to summarize.

Self evaluation of the teachers

Evaluation takes on more meaning when the teacher does self evaluation by measuring the kind and amount of change manifested by the pupils in terms of the goals or objectives. Self evaluation by the Home Science teacher is essential for effective teaching and learning. It gives her personal satisfaction regarding the progress achieved and motivation for further achievement. Through self evaluation the teacher obtains evidence on whether or not, her pupils are achieving their educational aims She gets data by which she may appraise the techniques and organization used to teach.

Self evaluation of the teacher must be continuous, cumulative process, a part of all functional learning, serving to diagnose difficulties and guide pupil growth and development. The following check list will be helpful for self evaluation

	Yes	*No*	*Partially fulfilled*
1. Have I improved my teaching? ...			
2. Have I imparted new skills to pupils? ..			
3. Do I have the ability to get along with pupils? ...			
4. Has my Home Science teaching been effective? ...			
5. Have the pupils shown interest in practising skills learned? ...			
6. Do they practice them at home? ...			
7. Do the mothers come to school seeking information from me? ...			
8. Is there co-operation between the teacher and the mothers? ...			
9. Is there improvement in the health of the pupils and community? ...			
10. Is there improvement in standards of sanitation? ..			
11. Do I prepare the pupils for their future life? ...			
12. Have I created a sense of appreciation for what is taught? ..			
13. Have the girls improved in human relationship? ...			
14. Is the public convinced of the usefulness of Home Science Education? ...			

	Yes	*No*	*Partiallty fulfilled*
15. Does my teaching meet the pupil's needs ? ...			
16. Are the pupils who have learned Home Science, better home makers ? ...			

How does evaluation contribute towards building a programme

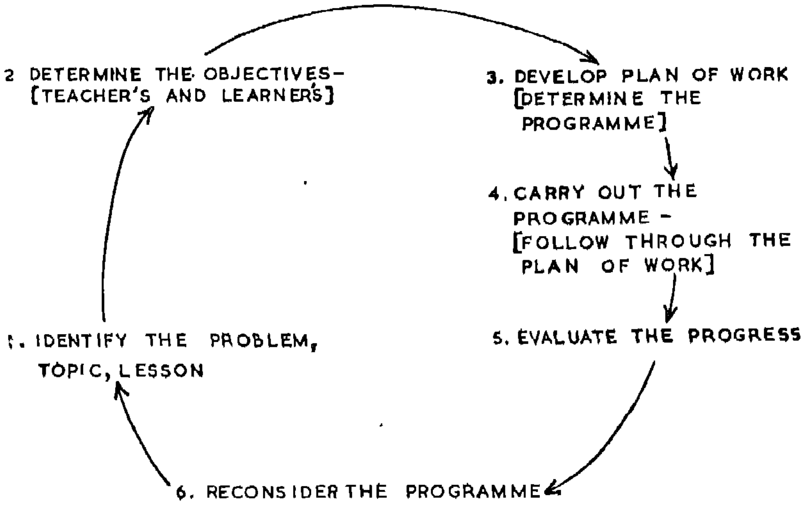
Evaluation contributes towards building a programme by;

1. Helping to establish a 'level mark' where pupils were before teaching began.
2. Showing how far the plans have progressed. Whether the programme is going in the right direction, focusing work on needs, interests and desires of pupils.
3. Indicating the effectiveness of programme and product, the changes that have occurred.
4. Helping to locate the strong and weak points of the programme.
5. Improving the skills in working with pupils — making the teacher and learners more aware of others attitudes, habits and satisfactions.
6. Helping to determine priorities for action. What to do, how much to do, what to omit; and
7. Bringing confidence and satisfaction to work.

The illustration below explains the contribution of evaluation in education.

How does evaluation contribute to the educational programme ?

THE EDUCATIONAL CYCLE


2 DETERMINE THE OBJECTIVES–
(TEACHER'S AND LEARNER'S)
3. DEVELOP PLAN OF WORK
[DETERMINE THE PROGRAMME]
4. CARRY OUT THE PROGRAMME –
[FOLLOW THROUGH THE PLAN OF WORK]
5. EVALUATE THE PROGRESS
6. RECONSIDER THE PROGRAMME
1. IDENTIFY THE PROBLEM,
TOPIC, LESSON

Evaluation provides the data upon which reports to parents and the community can be based. They can directly help to bring about home and school co-operation towards the best possible learning experiences for the pupils. Good evaluative procedures produce solid information. Then teachers can handle better questions and criticisms of their Home Science programmes. They will be better equipped to communicate the objectives, achievements and short comings of their programmes. Administrators will also be provided with valid information upon which to make their judgements and recommendations.

Guidelines in evaluation for teachers

1. Identify objectives clearly. Avoid vague, global objectives.
2. Write the objectives in specific, observable terms.
3. Determine content, methods and materials and type of evaluation for achievement and assessing your behavioural objectives.
4. Select a variety of evaluation devices.
   Include a wide range of tests such as :
   - (a) Essay
   - (b) Short answer
   - (c) Fill-in
   - (d) True-false
   - (e) Multiple choice
   - (f) Matching
   - (g) Crossword puzzles
   - (h) Picture tests
   - (i) Situational
   - (j) Performance or Motor
   - (k) Others
5. Test only for those items to which pupils were exposed.
6. Test often and have pupils participate in the results. Children should be exposed to frequent testing, to lessen their fear of tests and anxiety.
7. Let tests show what teacher values in the teaching-learning process. Then the pupils will follow teachers lead.
8. Evaluate continually, serialize testing and revise tests as a result of pupils' responses. Invite pupils comments on tests and have them set tests.
9. Continue self-evaluation: As teachers are professionally committed to improving learning, the more introspective they are about their own teaching and examine the impact of their goals, methods and techniques, the better will be the results,

In our present-day teaching, the link between instructional procedures and testing procedures is not clearly perceived. Education should become a self evaluating scheme, with these linked together in a systematic way. It is upto the Home Science teacher to introduce this concept of evaluation in her every day teaching, taking into consideration the time and facilities at her disposal and develop greater professional competences.

Evaluation is thus the process of determining the extent to which an objective is being attained, the effectiveness of the learning experiences provided in the classroom and how well the goals of education have been accomplished.

Evaluation can be summarised in the steps listed by Brown(1)

Knowledge	*Comprehension*	*Application*	*Analysis*	*Synthesis*	*Evaluation*
(ability to recall to bring to mind the appropriate material).	(ability to apprehend what is being communicated and make use of the idea without relating it to other ideas or material or seeing fullest meaning)	(ability to use ideas, principles theories in new, particular and concrete situations).	(ability to break down a communication into constituent parts in order to make organization of the whole clear).	(ability to put together parts and elements into a certified organization or whole)	(ability to find the value of ideas, procedures, methods, etc., using appropriate criteria).
	Requires knowledge.	Requires comprehension	Requires application.	Requires analysis	Requires synthesis.
		Requires knowledge.	Requires comprehension	Requires application.	Requires analysis
			Requires knowledge.	Requires comprehension.	Requires application.
				Requires knowledge	Requires comprehension
					Requires knowledge.

ASSIGNMENTS

1. *Organise a panel discussion on the qualities of a good teacher.*
2. *Prepare a check list for evaluating pupils responses after a lesson.*
3. *Compare a good demonstration lesson with one that is poor.*
4. *Discuss student teaching the characteristics of reliable tests for a unit on housing.*

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APPENDIX — A

Home Science Association of India

THE HOME SCIENCE ASSOCIATION OF INDIA is an Association of Home Scientists who have had training in various disciplines of Home Science and those who have specialised in any of the fields leading to higher academic degree.

The Home Science Association of India was initiated at a meeting of Home Scientists of India and Ceylon which met at Baroda in 1951 under the leadership of Smt. Hansa Ben Mehta, the then Vice-Chancellor of the University and Dr. Leela Desai, the then Dean of the Faculty of Home Science, Baroda assisted by Dr. Flemmie P. Kittrell, Fulbright Professor from U. S. A. It was at this conference, the position of home science in high schools and colleges was first summarised and decision was taken to form a Home Science Association.

The Home Science Association of India was formed at the conference convened at Women's Christian College, Madras in September 1952 with the able assistance of Miss Dorothy M. Pearson, Professor of Nutrition and one of the founder members of the Association. The veteran statesman late Sri C. Rajagopalachari inaugurated this first conference of the Association.

The purpose of the Madras Conference was to adopt a constitution, to implement the decisions made at the Baroda conference, and also to make plans for a working organisation to develop and promote Home Science in India. Mrs. B. Tara Bai, the then Director, Lady Irwin College, New Delhi was the first President and Miss D. M. Pearson, the Vice President of the Association.

The office bearers include President, Vice President (Two), Hony. General Secretary, Hony. Joint Secretary, Hony. Treasurer, and members of the Executive Committee.

The Association was registered as a body in 1953 in Delhi and was affiliated to the International Federation of Home Economics and the Government of India was requested to refer all matters pertaining to Home Science Education to the Association.

Aims and Objectives of the Association

(1) To promote the welfare of the family through sound homemaking education

(2) To raise the standards of the profession of Home Science

These basic aims are implemented through the years by

(a) encouraging the establishment and improvement of homemaking education in schools, training colleges, universities and out of school programmes.

(b) making available, reports, pamphlets and other publications relating to home science.

(c) encouraging and aiding research and investigations in the various fields of home science such as Foods and Nutrition, and Family and Community Nutrition, Home Management, Housing, Home Furnishing and Household Equipment; Household and Consumer Economics and Child Development and Family Relationship.

(d) standardising and coordinating the courses in different institutions.

(e) being instrumental in promoting consumer education for quality products.

(f) undertaking supporting activities for the expansion of home science extension for the benefit of rural homemakers.

(g) developing scientific attitude and artistic outlook in homemakers.

(h) exploring the employment opportunities of Home Scientists and raise professional state of Home Science.

The Association members meet at every bienniam in a place suggested by the general body. So far the Association had its biennial Conferences in places as mentioned below:

Conference	*Place*	*Year*
First	Women's Christian College, Madras	September, 1952
Second	Lady Irwin College, New Delhi	September, 1954
Third	Allahabad Agricultural Institute, Allahabad	October, 1956
Fourth	M. H. College of Home Science, Jabalpur	October, 1958
Fifth	Sri Avinashilingam Home Science College, Coimbatore	December, 1960
Sixth	Rajasthan Mahila Vidyalaya, Udaipur	October, 1962
Seventh	S. N. D. T. Women's University, Bombay	October, 1964

Conference	*Place*	*Year*
Eighth	Viharilal College of Home and Social Science, Calcutta	October, 1966
Ninth	Sri Avinashilingam Home Science College, Coimbatore	December, 1968
Tenth	University of Nagpur, Nagpur	October, 1970
Eleventh	University of Kerala, Trivandrum	December, 1972-January, 1973

In 1954, an Inter-university Contract with Government of India, Ministry of Education on the one hand and the T. C M. and the University of Tennessee on the other hand was established for getting Home Economics specialists from the University of Tennessee and also for procuring equipment and books for the different universities and for getting our home science teachers trained in the University of Tennessee.

Mrs. B Tara Bai continued to be the President since 1952 to December, 1960, and during her Presidentship, worked towards having a firm foundation for the Association. Dr. Rajammal P. Devadas, Principal, Sri Avinashilingam Home Science College, Coimbatore, an eminent Home Scientist and Nutritionist nationally and internationally known, took over charge from Mrs. B. Tara Bai and continued to be the President until October, 1970 during which time the Association grew steadily. Miss Mamata Adhikari, Principal, Viharilal College of Home and Social Science took over charge from Dr. Rajammal P. Devadas.

The University of Tennessee/India Home Economics second contract terminated in June, 1962. At this juncture the Ford Foundation rose up to aid by establishing a strong nucleus of Home Science Research and Postgraduate work in the Faculty of Home Science, M. S. University of Baroda enabling home scientists to work towards Ph. D. in our country in different areas in Home Science.

Under the auspices of the Association several subject-matter workshops and summer camps were organised with the assistance of the University Grants Commission. Through the Association, ICAR scholarships had been instituted both at the undergraduate and postgraduate levels.

To disseminate knowledge based on research conducted in the major fields of home science, the Indian Journal of Home Science which is a half yearly publication was started in the year 1966.

In 1973, working closely with the Indian Standards Institution the Home Science Association of India, has brought out standardised cups and spoons and a brochure on terminology. This is a big contribution to the scientific field.

The regional branches, started to strengthen the Association have given place to state branches, to facilitate meeting of members and taking up action programmes. The Home Science Clubs started in various colleges are a great support to the Association.

At present there are more than 800 members in the Association including 200 life members, active members, associate members, institutional members, students and club members. With the support of the members, the Association, ever since its inception has been working towards uplifting the standard of Home Science Education at all levels and thereby helping members to meet the needs of the home, community and the nation in various capacities.

THE HOME SCIENCE ASSOCIATION OF INDIA

Application for Membership

Name (in block letters) Mrs/Miss/Institution ....
....

Present position..

Complete mailing address ....

Town..

District..

State...

Qualifications ·

Degree or Diploma	Subjects taken	University, College or School	Year	Other distinction

Professional experiences

Membership desired : (Please check which one)

Sustaining	Rs. 50/- per year	Student	Re. 1/- per year
Ordinary	Rs. 20/- ,,	Insitutional	Rs. 50/- per year
Associate	Rs. 20/- ,,	Life	Rs. 200/- per year

Affiliation desired H. S. A. I.

Regional Branch to which affiliation is sought

Membership fee paid (please check), by Cheque No. Date
Money order/Cash

Date of application *Signature of applicant*

Receipt No .... Issued on ....

Membership accepted on ....

President. *Secretary.*

P. T. O. for details of Membership

MEMBERSHIP

Charter Members : consisting of those persons who took part in the Baroda Conference of 1951, which is recognised as the first meeting of the Association and the year of its establishment

Ordinary Members, consisting of ,

(a) Those persons who have a degree in Home Science or Home Economics from a recognised Indian University or its equivalent in other countries.

OR

(b) Those persons who have a degree in a related field to Home Science from a recognised Indian University or its equivalent elsewhere provided that by post-graduate work and, or, experience the persons have become, in interest and practice, a Home Scientist The Executive Committee of the Association will rule on whether the person satisfactorily meets these conditions.

(c) Those persons, who hold diplomas or certificates from Home Science Colleges or Institutes in India prior to 1952

Associate Members, consisting of

(a) Those persons who have a diploma in Home Science or Home Economics granted by a College or a School of Technology upon completion of a two year course following matriculation or its equivalent.

(b) Those individuals offering Home science as an optional subject in B. A., or B. Sc.

Student Members, consisting of members of the final year of B A. or B. Sc. Courses in Home Science. The last date for taking a student membership should be December 31st of the previous calendar year.

Life Members, consisting of any ordinary members of the Association who pay Rs. 200/-.

Institutional Members, consisting of institutions recognised by the Hom Science Association of India for their teaching of Home Science on payment of Rs. 50/- per annum.

Sustaining Members, consisting of those individuals, firms, groups an associations actively promoting Home Science in India.

The Executive Committee shall rule on whether the abov persons or organizations satisfactorily meet these conditions.